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ABSTRACT

This paper offers a background of information on children in elementary school in the 1990s and on likely trends in the near future. It focuses particularly on issues relating to students who are at risk for school failure. One section identifies various risk factors that students face when they enter school and estimates the numbers of at-risk students across the United States. Data on developments over time in demographics show that the number of students has increased and that the school-age population is becoming more racially, ethnically, and linguistically diverse. Student performance is discussed including methods for measuring achievement; trends in aggregate performance, reading, writing, mathematics, science, and minority student achievement; and aggregate teacher characteristics. A description of programs and policies designed to prevent or address learning problems in elementary school grades covers Chapter 1/Title 1, Head Start, and special education. Also discussed are trends in education of at-risk students, noting that nationally this is a time of important changes in curriculum and assessment away from teaching isolated skills and drill and toward the integration of content across disciplines, problem solving, higher-order thinking skills, and holistic approaches. Included are 23 figures, 20 data tables, and 30 references. (JB)

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THE JOHNS HOPKINS UNIVERSITY

Elementary Students At Risk:

A Status Report

Nettie Legters and Robert E. Slavin

Report No. 38

October 1992

CENTER FOR RESEARCH ON EFFECTIVE SCHOOLING FOR DISADVANTAGED STUDENTS

U.S. DEPARTMENT OF EDUCATION
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The Center

The mission of the Center for Research on Effective Schooling for Disadvantaged Students (**CDS**) is to significantly improve the education of disadvantaged students at each level of schooling through new knowledge and practices produced by thorough scientific study and evaluation. The Center conducts its research in four program areas: The Early and Elementary Education Program, The Middle Grades and High Schools Program, the Language Minority Program, and the School, Family, and Community Connections Program.

The Early and Elementary Education Program

This program is working to develop, evaluate, and disseminate instructional programs capable of bringing disadvantaged students to high levels of achievement, particularly in the fundamental areas of reading, writing, and mathematics. The goal is to expand the range of effective alternatives which schools may use under Chapter 1 and other compensatory education funding and to study issues of direct relevance to federal, state, and local policy on education of disadvantaged students.

The Middle Grades and High Schools Program

This program is conducting research syntheses, survey analyses, and field studies in middle and high schools. The three types of projects move from basic research to useful practice. Syntheses compile and analyze existing knowledge about effective education of disadvantaged students. Survey analyses identify and describe current programs, practices, and trends in middle and high schools, and allow studies of their effects. Field studies are conducted in collaboration with school staffs to develop and evaluate effective programs and practices.

The Language Minority Program

This program represents a collaborative effort. The University of California at Santa Barbara is focusing on the education of Mexican-American students in California and Texas; studies of dropout among children of recent immigrants have been conducted in San Diego and Miami by Johns Hopkins, and evaluations of learning strategies in schools serving Navajo Indians have been conducted by the University of Northern Arizona. The goal of the program is to identify, develop, and evaluate effective programs for disadvantaged Hispanic, American Indian, Southeast Asian, and other language minority children.

The School, Family, and Community Connections Program

This program is focusing on the key connections between schools and families and between schools and communities to build better educational programs for disadvantaged children and youth. Initial work is seeking to provide a research base concerning the most effective ways for schools to interact with and assist parents of disadvantaged students and interact with the community to produce effective community involvement.

Abstract

This report pulls together data from many sources to describe the status of elementary school children in the 1990's, especially the status of those children who are described as being at risk of school failure. The report identifies various risk factors that many students face when they enter school and presents data on developments over time in demographics, student performance, and programs and policies designed to prevent or remediate learning problems in the elementary grades.

Acknowledgments

This paper was commissioned by the Carnegie Corporation of New York as a background paper for a meeting on elementary school reform, June 1-2, 1992.

Introduction

In August and September, approximately 3.5 million children entered our nation's kindergartens. They wore new clothes, and bright smiles, and they were confident that they could succeed in school.

But a few years from now, many of these bright, enthusiastic children will be in deep trouble. Many will be in special education. Many will be receiving Chapter 1 services because of their poor achievement, and others will qualify for such services but not receive them. Many will have failed one or more grades; in many urban districts the *majority* of fifth graders have failed at least one grade. Many will be reading so poorly that they will have difficulty learning throughout their school careers. Many will be discouraged, frustrated, angry, or unmotivated.

Students' experiences in the elementary grades have a profound impact on their futures. Early in first grade, information on students' socioeconomic status and performance does not predict ultimate high school completion very well. By third grade, however, this information predicts high school completion with a high degree of accuracy. Disadvantaged children who have failed a grade or are reading below grade level are unlikely to graduate (Lloyd, 1978). What this tells us is that actual success or failure in elementary school, especially in the early grades, is far more important than socioeconomic factors in predicting ultimate success in the educational system (and therefore in the economic system). There is hope in this observation; we cannot easily change students' family circumstances, but we can help them succeed in school.

The purpose of this paper is to provide a background of information on children in elementary school today and on likely trends in the near future, with a focus on issues relating to students who are at risk for school failure. The paper identifies various risk factors that many students face when they enter school and presents data on developments over time in demographics, student performance, and programs and policies designed to prevent or remediate learning problems in the elementary grades.

There is little in this paper that is new or surprising to those who follow these trends, but we have attempted to pull together in one place data from many sources bearing on the current status and outlook for elementary children in the 1990's.

Risk Factors

Factors that predict undesirable educational outcomes such as low academic achievement and dropping out include childrens' background characteristics as well as features of their schools and communities (Natriello, McDill, & Pallas, 1990). Such characteristics of children and their families as socio-economic status, race/ethnicity, language background, family structure, and parents' education all play a role in determining childrens' relative advantages and disadvantages in achieving success in school. School characteristics such as high enrollments of poverty students, low levels of school resources, and few challenging educational opportunities also predict poor outcomes, as do such features of an individual child's school experience as retention, low achievement, behavior problems, and poor attendance. Finally, there is some evidence that characteristics of the child's home or school community such as low economic status, lack of positive role models, and high levels of violence may also contribute to low achievement or academic failure.

In the actual experience of a child progressing through school, these factors are intertwined in a complex web of forces, events, and relationships which can have the general effect of severely restraining a student's potential to learn. Some of these risk factors, however, are more relevant than others to predicting students' school success at certain ages (Slavin, 1989a, 1989b). As students move beyond the early grades, the best predictors of negative outcomes such as dropping out are indicators of their actual performance in school: grades, attendance, and retentions. For pre-school children and students just entering school, these factors have little relevance given the limited predictive validity of tests at young ages and the obvious fact that young children have too little actual school experience to determine their level of risk based on such factors. For these children, socio-economic characteristics are better predictors of dropout and other school problems.

The observation that different risk factors have better predictive power for children at different stages in their school careers has important practical implications for identifying which students need services to bolster their chances for high levels of achievement and engagement in school. Characteristics of disadvantaged populations such as poverty and minority race/ethnicity and linguistic status may be the most relevant factors in targeting four-year-old children for extra help and resources, since we know that students with these characteristics tend to perform, on average, at lower levels than their more advantaged, majority peers. Prevention programs, such as preschool, full-day kindergarten, and parent support programs, are therefore most appropriately targeted to children in poor communities rather than to individual children based on individual risk factors.

While these factors do not disappear in later years, by about age nine students' individual performance and behavior in school are better criteria for identifying those in need of services. By this point, the within subgroup variability is more apparent. In a heterogeneous school, for example, there will be students from impoverished families who are performing well and relatively advantaged students who are doing poorly and are at risk of dropping out. At this stage, interventions targeted based on individual risk factors (as contrasted with socioeconomic conditions) become more appropriate.

Data on students' background characteristics and their relationship to achievement outcomes is fairly widely available, largely because such information is collected through the decennial U.S. Census and through nationwide standardized achievement assessments. There are, however, some difficulties in achieving fair and accurate interpretations based on these data. Measures of poverty, for example, tend to assess an individual child's poverty level at a single point in time. Research shows, however, that the amount of time a child spends in poverty and the proportion of poverty students attending the child's school are much stronger predictors of that child's academic achievement than is family income at any one point in time (Kennedy, Jung, & Orland, 1986). Overall, we know less about the impact of school and community characteristics on student learning than we do about students' individual background characteristics.

Estimating the size of the at-risk student population is a difficult task that largely depends on whether one is looking at educational failure, graduating without basic skills, dropout, or any other of the several available criteria. Natriello, McDill and Pallas (1990) estimate that 40% of the school-age population under 18 is at risk of failure in school on the basis of at least one of the following five indicators: race/ethnicity, poverty status, family structure, mother's education, and limited English proficiency.

The number of at-risk students might also be approximated by national dropout rates. In 1989, 12.6% of all 16 to 24 year olds were classified as high school dropouts (not enrolled and not high school graduates), with 12.4% white, 13.8% black and 33% of Hispanic origin. While some of these students may return to obtain either a high

school diploma or GED, the numbers probably underestimate the number of students who are not succeeding in school and who are at risk of dropping out. While we do not put forth any numerical estimate of the number of students who fall into the category of substantial risk, the following demographic and achievement profiles help us get a handle on the nature and magnitude of the problem.

Demographic Profile

The demographic profile below tells us several things about school-age children (where possible we have included data specifically for elementary grade students). First, population and enrollment data show that the number of students has increased, marking a trend that is expected to continue through the turn of the century. Second, these data support the popular perception that the school-age population is becoming increasingly racially, ethnically and linguistically diverse. Finally, an increasing number of students are living in poverty or in single-parent, female-headed households which are more likely to be characterized by low economic status than homes where both parents are present.

Population and Enrollment

School-age Youth Under 18: In the period between 1988 and 2020, the total number of children under 18 is expected to increase by about 4%, rising from 63.6 million in 1988 to 66.4 million in 2020. Figure 1 displays the projected racial/ethnic composition of the U.S. population under 18 according to census data presented by Natriello, McDill and Pallas (1990).[1] According to this analysis, while the number of white children is expected to decrease substantially during this period, this decline will be offset by a near three-fold increase in the Hispanic population by 2020. The total proportion of whites in the school age population is projected to decrease from 7 in 10 in 1988 to 1 in 2 by 2020, whereas the total proportion of Hispanics will increase from 1 in 9 to 1 in 4 in 2020. The number of blacks in this age group is expected to increase somewhat during this period, from 15% to 16%. The total percentage of other groups (mostly Asian) is projected to nearly double, from 4% to 7% of the total population of school-age youth.

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Figure 1 Here
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Elementary School-Age Children: While the period between 1977 and 1985 saw a decline in the elementary school-age population (ages 5-13 yrs.), the number of annual births has increased since 1977, creating a phenomenon known as the "baby echo." The result is a current and projected increase in the number of elementary school-age children through the year 2000 with a downturn occurring in the first decade of the century. As indicated in Table 1, from 1985 to 1990 the number of 5-13 year olds increased by 7.9%, from 30.1 million to 32.5 million. By 1995, this number is expected to increase by 6.7% to 34.7 million. By 2002 this population is expected to increase at a lesser rate to 36.3 million. While the total elementary school-age population is then expected to drop to 31.9 million by 2010 (as indicated by a different source in Table 2), the total remains above the 1985 level.

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Table 1 Here
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Breaking down the elementary school-age population along racial and ethnic lines tells a slightly different story (Table 2). From 1985 to 1990, the number of white children in this

[1] Natriello, McDill and Pallas, 1990, use the high series of projections for migration, fertility, and mortality in estimating the Hispanic population while using the high series for migration and medium projections for fertility and mortality in estimating white and black populations.

age group increased by 6.1%. The level of increase is expected to drop from 1990-1995 to 4.6%; and from 1995 through 2010, the number of white 5-13 year olds is expected to decrease from 23.7 million to 20.3 million, a total decline of over 14%.

In contrast, the number of Hispanic 5-13 year olds increased by 15.8% from 1985 to 1990 and is expected to steadily increase through 2010, with the greatest rate of increase expected in the first half of the 1990's (16.6%). Overall, the number of Hispanic elementary school-age children is expected to grow from 3.5 million in 1990 to 4.8 million in 2010.

The picture for African American 5-13 year olds is somewhat similar. The number of children in this age group increased by 14.6% from 1985 to 1990. From 1990 through 1995 this number is expected to increase by another 12.1%, from 5.1 to 5.7 million, with the rate of increase slowing in the latter part of the 1990's. Unlike the Hispanic population, however, the number of 5-13 year olds is expected to decrease slightly by 2.2% to 5.6 million from 2000 to 2010. The total number of American Indians, Native Alaskans, Asian and Pacific Islanders is expected to steadily increase from 1.1 million to 1.4 million in the period from 1990 to 2010.

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Reflecting the overall increase in the number of 5-13 year olds, public and private elementary school enrollment also is projected to rise. The total number of elementary school students was 28.5 million in 1985 and is expected to grow to 32.8 million by 2002. Table 3 shows steadily increasing enrollments in public elementary schools from 1986 to 1990, while private elementary school enrollment dropped slightly. Projections for 1991 through 1996 show total enrollments increasing by an average of nearly 350,000 per year, with the rates of increase tapering off through the latter half of the decade. Overall, public elementary school enrollment in kindergarten through grade 8 is expected to grow on average about 1% per year from 1990 through 2002. Elementary enrollment is expected to increase the most in the Northeast (17%) and the least in the Midwest (5%). The West and the South are expected to see increases of 14% and 13%, respectively (Gerald & Hussar, 1991 p. 96).

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Family Structure

Table 4 and Figure 2 show a steady and dramatic increase in the number of children under 18 living in single parent families over the past several decades. For all races the percentage of children under 18 living with a single parent tripled between 1950 and 1989, rising from 7.1% to 21.9%. The rate of white children living in single parent homes is consistently lower than the average for all races, growing from 8.1% in 1970 to 16.8% by 1989. The rate for blacks, however, far exceeds the average level, growing from 33.6% in 1970 to 54.2% in 1989. The rate for Hispanics also exceeds the average level, growing from 21.3% in 1980 to 28.4% in 1989. While most single-parent families are headed by women, the number headed by men has been rising (see Table 8). The total number of children not living with both parents is projected to rise (Figure 3). Between 1987 and 2020, the number of these children is expected to increase by approximately 18%, from 16.9 million in 1987 to 19.9 million in 2020 (Natriello, McDill, & Pallas, 1990).

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Table 4 and Figures 2-3 Here
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Poverty and Income

The proportion of all children under 18 living in poverty declined during the 1960's but then rose during the 1970's and '80's. In 1989, approximately 19% of all children lived in poverty (Table 5). By age group, the highest proportion of children living in

poverty are under six years old, and this figure has increased between 1979 and 1989 (Figure 4). Moreover, while 31% of all children under six in 1989 were non-white minorities, 59% of poor children under six were minorities (National Center for Children in Poverty, 1991).

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Table 5 and Figure 4 Here
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The number of children under 18 living in poverty is projected to increase as shown in Figure 5 (Natriello, McDill, & Pallas, 1990). Between 1987 and 2020, the number of children in poverty is expected to rise by 33%, from 12.4 million to 16.5 million, representing a proportional increase of poverty children to all children from 20% to 26%. While this proportional increase may not appear very dramatic, Natriello, McDill and Pallas are right to point out that what matters here is that our schools will need to serve over 4 million more children in poverty by 2020 than they did in 1987.

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Figure 5 Here
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Far more disturbing than the number of children living in single parent homes is the high correlation between single parent homes (specifically female-headed households with no husband present) and low economic status (Table 5). Once again, rates for black and Hispanic children far exceed the average for all children, with 43.2% of black children and 35.5% of Hispanic children living in poverty in 1989, in contrast to 14.1% of white children. These rates rise across the board when looking at female-headed households. In 1989, the poverty rate of children in female-headed families was 51.1%, with 42.8% for whites, 62.9% for blacks, and 65.0% for Hispanics. Moreover, the proportion of all poverty children living in female-headed households has seen a nearly steady increase for all groups through 1988 with some decline in 1989--rising dramatically since 1960 from 24% to 57% for all children, from 29% to 76% for black children, and from 21% to 46% for white children.

Female-headed households also show a much higher percentage of children who live in families with relatively low income levels. Table 6 shows that, in 1987, the highest proportion of children of children living in female-headed households live in families with an annual income under $10,000 (nearly 54%), with the second highest proportion (25%) living in families with an income ranging from $10,000 to $19,999.

Children living in married couple families are more evenly distributed, with the highest percentages found in the $20,000-$39,999 range. A related change in family structure has occurred for these children, however, as the number of married couple families with both parents participating in the labor force has increased significantly during the 1970's and '80's (Table 7). The percentage of families with children under 18 with both parents working rose from 37.1% in 1975 to 58% in 1986, replacing households with only the father employed as the predominant pattern. Another notable statistic here is the high rate of labor force participation among single fathers with children under 18 in contrast to the lower participation rates of single mothers.

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Home Language

The U.S. Department of Education has examined school-age children on the basis of the number of children scoring at or below the 20th percentile on a national English proficiency test and on 11 indicators of dependency on their native language, such as whether the child speaks a non-English language at home and whether English is the primary or secondary household language (Natriello, McDill, & Pallas, 1990). Depending upon the number of indicators used, the number of children who display limited English proficiency (LEP) ranges from 1.2 million (6 indicators) to 2.6 million

(at least 1 indicator). An alternative assessment conducted by the U.S. General Accounting Office estimates this population at about 1.5 million (U.S. GAO, 1987 in Natriello, McDill, & Pallas, 1990).

As shown in Figure 6, the number of children under 18 speaking a primary language other than English (PLOTE) is projected to increase from 2.3 million in 1986 to 5.5 million by 2020, raising the proportion of PLOTE children from under 4% to nearly 8%.

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Figure 6 Here
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Academic Profile

At the national level, student academic performance in most elementary schools is assessed primarily through standardized achievement tests such as the CAT, MAT and CTBS. In addition to these tests, the National Assessment of Educational Progress (NAEP) has regularly assessed academic achievement among 9-, 13- and 17-year-olds in reading, mathematics, science, writing, history, geography, civics and other fields since its inception in 1969. In this section we highlight significant achievement trends based on the NAEP data, focusing on students' race/ethnicity, school SES, and parents' education (a proxy for student SES). We also take a brief look at language minority student achievement and at aggregate teacher characteristics to provide a sense of who is teaching elementary-school-age students.

As Kennedy, Birman and Demaline (1986, pp. D13-14) point out, care should be taken in interpreting trends in NAEP test score data, as there has been no formal equating of scores from one assessment to the next. Moreover, these researchers report that while NAEP's sample design itself is strong, resulting in fairly representative samples, several subgroups are excluded, including handicapped students, students with limited English proficiency, and students who have dropped out of school. These groups are important to any study of at-risk students. Despite these limitations, NAEP's instruments are carefully designed and there is consensus in the research community that the achievement data collected are of fairly high quality.

National Trends of Aggregate Student Performance

Figure 7 shows national trends in average achievement for science, math, reading, and writing. Science proficiency for 9-year-olds declined in the 1970's and rose in the 1980's. However, performance levels in this area in 1990 remain only slightly above what they were in 1970. Proficiency in math improved steadily for 9-year-olds between 1973 and 1990. While the overall increase during this period is not dramatic, the fact that the increase has occurred primarily since 1982 may indicate a continuing upward trend. In reading achievement, 9-year-olds made gains in the 1970's. These gains appear to have eroded during the 1980's, however, bringing 1990 levels back down to previous 1971 levels. Students in the fourth grade displayed improvements in writing from the 1984 to 1988 assessments, but this upward trend was not sustained in 1990. Below we consider trends in student performance in each of these subject areas for various student subgroups. All data cited are for 9-year-olds or 4th graders unless otherwise specified.

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Reading

Figure 8 and Table 8 show that, in 1990, black and Hispanic students scored lower on average in reading than white students at each measured grade level, with Hispanics scoring

slightly above blacks. Average scores for students in other racial/ethnic subgroups (Native American, Native Alaskan, Asian/Pacific Islander) show performance levels below whites and above both blacks and Hispanics. Though there is variation within groups, black and Hispanic 12th grade students on average performed far closer to the level of 8th grade white students than to their 17-year-old white peers (Figure 7). However, blacks and Hispanics on average show more improvement than whites in reading achievement across grade levels. While this improvement lessens between ages 13 to 17, performance gaps between whites and the other two subgroups appear to narrow slightly as children progress through school.

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Figure 8 and Table 8 here
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Between 1971 and 1990, reading scores for white 9-year-olds remain relatively constant. Black 9-year-olds, however, made significant progress in reading performance throughout the 1970's, though these gains have leveled off in the 1980's and have actually seen a slight downturn in 1990, bringing average reading scores for black students close to the 1975 level. Hence, the gap between black and white 9-year-olds decreased during the 1970's, but remained stable in the 1980's and increased slightly by 1990. Since its first measurement in 1975, Hispanic students' reading performance has also improved and remained between that of black and white students (albeit with scores much closer to those of black students). They have made comparatively smaller gains, however, than black students.

Table 8 shows a clear linkage between the social-economic status of the school's community and average levels of reading proficiency. In 1990, 9-year-old students attending schools in disadvantaged urban areas scored significantly lower than their peers in advantaged urban schools and somewhat lower than their rural counterparts. Students in rural communities achieved significantly higher average reading levels in 1980 than in 1971, and students in disadvantaged urban areas attained significantly higher average scores in 1984 than in 1971.

Not surprisingly, 9-year-old students with college educated parents show consistently higher scores than students with less educated parents, and students whose parents graduated from high school perform better than those whose parents did not complete high school. Students whose parents had a post-high-school education, however, have seen a decline in 1990 reading achievement from the 1980 level.

Figure 9 describes the five levels of reading proficiency corresponding to the NAEP scale. Tables 8.1-8.5 show percentages of 9-year-old students and student subgroups with reading proficiencies at each of these levels. While the vast majority of 9-year-olds assessed have been able to carry out simple, discrete reading tasks (level 150) in each assessment, the trend data show a decline in the number of students performing at this level after 1980. A similar trend is seen at the next reading level (200), with the proportion of 9-year-olds performing at this reading level rising from 59% in 1971 to 68% in 1980 but then dropping back to 59% in 1990. This downturn in the 1980's suggests an area of concern.

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Figure 9 and Tables 8.1-8.5 Here
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Racial/ethnic breakdowns for reading levels show that at the 200 level, the gap between blacks and Hispanics and whites has been reduced substantially since 1971. In 1971, six in ten white 9-year-olds were performing at the 200 level compared to two out of every ten black students. By 1988, the number of black students performing at this level nearly doubled while there was little change in the number of white students. In 1975, three in ten Hispanic 9-year-olds performed at this level compared with nearly seven in ten whites. By 1988, nearly half of the Hispanic students were performing at this level. Performance for black and Hispanic students

decreased slightly in the 1990 assessment. The percentage of students in the "other" subgroup performing at this level steadily increased and exceeded the percentage of white students in the 1984 and 1988 assessments. In the 1990 assessment, however, their numbers at this level declined by a dramatic 20.3%, dipping below the number of white students. Trend estimates are unreliable for this student group, however, due to small sample size.

Writing

In the 1984, 1988 and 1990 assessments of students' writing proficiency, NAEP examined students' ability to produce three types of writing: informative, persuasive, and imaginative. Student writing is evaluated on whether it meets the specific purpose of each writing task (primary trait evaluation), students' relative writing fluency, and students' mastery of spelling, punctuation and grammar. A composite score based on the first mode of evaluation (primary trait) provides estimates of students' average performance across all three types of writing.

Table 9 shows average scores and trends in writing proficiency among 4th graders. Trends for white, black and Hispanic students are displayed in Figure 10. Performance for these three groups has remained relatively stable across time. There was some slight improvement for white and Hispanic 4th graders from the 1988 to 1990 assessment, but no change for black students at this age. White students consistently scored 30-40 points above black 4th graders. Hispanic students' average scores remained in the middle, somewhat closer to those of black students.

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Fourth grade students attending school in advantaged urban areas had the highest scores on all three assessments. Students in rural areas had the lowest average scores in 1984. The scores of 4th graders in disadvantaged urban areas declined, however, from 1984 to 1988, while the scores of students in rural areas rose. Hence we find students in disadvantaged urban communities with the lowest average scores in 1990. A larger gap exists between these students and students in the other groups (rural, advantaged urban and "other") which are now more closely clustered together.

The writing performance of 4th graders was higher for students whose parents had completed high school and, in general, higher still for students whose parents had some post-high school education or were college graduates. These results varied little over the three assessments.

Alternative Writing Assessment: The methods NAEP has used on their traditional writing assessments have the problem of measuring only "how well students can write on an assigned topic under timed conditions. They are not designed to capture the range and depth of the writing processes in which students engage during process writing instruction programs (Gentile, 1992, p. 2)." The student products of traditional writing assessments are essentially rough drafts written in 15 minutes which give little information about how well a student implements editing and revising strategies crucial to good writing.

In 1990, NAEP began to explore alternative ways of evaluating student writing by conducting a pilot portfolio assessment alongside their standard assessment. The main purposes of the pilot study were: "1) to explore procedures for collecting classroom-based writing from students around the country; 2) to develop methods for describing and classifying the variety of writing submitted; and 3) to create general scoring guides that could be applied across papers written in response to a variety of prompts of activities (Gentile,1992, p. 5)." While the results of this particular study are not useful in assessing students' writing abilities given their non-representative sample (consisting of students who tended to be older, higher achieving, and more advantaged than those assessed in the standard 1990 study), NAEP

will apply the lessons learned from the pilot to their 1992 Portfolio Study. On the whole, the endeavor appears to be a promising step forward in national writing assessment practice.

Mathematics

Table 10 and Figure 11 show the results of NAEP's assessments of 9-year-olds' proficiency in mathematics between 1978 and 1990. Statistically significant improvements have been found for black, white, and Hispanic 9-year-olds over this time period. This improvement is accompanied, however, by persistent and relatively stable discrepancies between the achievement of white students and their black and Hispanic peers. While the gap between white and black 9-year-olds narrowed between 1973 and 1986, it saw less of a decrease in the 1980's and increased again slightly in 1990. The gap between Hispanic and white students was smaller than that between whites and blacks, but showed no signs of improvement over this time period.

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Table 10 and Figure 11 Here
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While there has been improvement between 1978 and 1990 in math performance among 9-year-old students living in disadvantaged urban areas, their scores remain consistently below those of students in advantaged urban areas. Students living in rural areas and in areas classified as "other" also showed significant gains, with proficiency levels falling between those of the advantaged and disadvantaged urban populations. Broken down by parents' education, 9-year-olds showed progress across all levels of parental education between 1978 and 1990, except for those in the "some post-high school education" category.

Figure 12 describes levels of mathematics proficiency corresponding to five points on the NAEP scale. Tables 10.1-10.5 show the percentages of various student subgroups at age 9 performing at or above these levels. The picture is most interesting when looking at level 200, where there is the greatest amount of variation among student subgroups. In 1978, less than half (42%) of black students and slightly over half (54%) of Hispanic students performed at this level, compared to 76% of white students and 80% of "other" students. By 1990, this gap had reduced somewhat, with 60% of black students and 68% of Hispanic students performing at this level, compared to 87% of both white students and other students. Similar gaps are present at the 250 level.

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Figure 12 and Tables 10.1-10.5 Here
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In 1991, the National Assessment Governing Board applied new standards for reporting the results of NAEP data which enable data to be reported in terms of what students should be able to do at particular grade levels (National Education Goals Panel, 1991). Table 12 shows the results of student performance in grade 4 broken down by student race/ethnicity and by achievement level. Achievement levels are 1) basic, which denotes partial mastery of knowledge and skills for proficient math work in grade 4, e.g., routine one-step problem solving, 2) proficient, which represents solid academic math performance and an understanding of numbers and their application to daily life problem solving, and 3) advanced, which indicates superior performance, e.g., greater ability to analyze more complex problems and to generalize knowledge to different situations. Students have been further designated as "competent" if they display advanced or proficient levels of performance, while students at or below the basic level of performance are categorized as "not competent" (Figures 13 and 14). The validity and reliability of this latter categorization, however, remains to be determined.

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Table 11 and Figures 13-14 Here
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According to this analysis, in 1990, the largest proportion of black and Hispanic 4th grade students scored at the below basic

level, 70% and 58% respectively. The majority of white students (55%) and American Indian/Alaskan Native students (50%) and a near majority of Asian/Pacific Islander students (49%) scored at the basic level. Only Asian/Pacific Islander students (27%) and white students (18%) are substantially represented at the proficient level. Figure 14 shows that the majority of 4th grade students in all racial/ethnic subgroups can be classified as "not competent" in math, with the greatest percentage being black students (98%) and the lowest percentage being Asian/Pacific Islander students (71%).

Science

Table 12 and Figure 15 show the results of NAEP's assessment of 9-year-old students' proficiency in science broken down for various subgroups. Race and ethnic breakdowns show that black students have achieved the greatest increase in this area since the early 1970's, hence narrowing the gap between themselves and white students. The lessening of this gap, however, did not continue past 1982, and black students' average scores remain below those of white, Hispanic, and "other" students. The gap between Hispanic and white students also decreased somewhat, though not significantly. Although student performance in advantaged urban communities remains consistently and substantially higher than that in other areas, the gap between students in these areas and their disadvantaged urban counterparts has narrowed significantly since 1977.

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Table 12 and Figure 15 Here
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As with reading and math, NAEP also provides a breakdown of the scale into levels of science proficiency, as described in Figure 16. Tables 12.1-12.5 show the percentages of students by various types of subgroups performing at each successive level. In 1990, 97% of all 9-year-olds demonstrated knowledge of everyday scientific facts (level 150), 76% demonstrated an understanding of simple scientific principles (level 200), and 31% were able to adequately apply general scientific information (level 250). In 1990, levels 200 and 250 show significant gains over 1977 and 1982 assessments.

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Figure 16 and Tables 12.1-12.5 Here
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At the 200 level, black students have made the most gains among the racial/ethnic subgroups, raising their number from approximately three in ten in 1977 to nearly five in ten in 1990. This increase has waned in the latter half of the 1980's, however, and the gap in 1990 between the number of black students (46%) and their white peers (84%) performing at this level remains quite large. Hispanic students also have made significant gains at this level, but, similarly, the gap compared to whites is substantial.

The number of students proficient at this level in disadvantaged urban areas rose from 34% in 1977 to 57% in 1990. The number in advantaged communities rose less than half that much, from 73% in 1977 to 82% in 1990. Communities classified as "other" resembled rural areas in percentages and level of improvement, while advantaged urban areas remained relatively stable. While there is not much difference in representation among students whose parents have had some post-high school education or are college graduates at this level, more of the students in each of these groups attain this level than students with less educated parents.

Achievement of Language Minority Students

Increased immigration from Latin American and Asian countries has resulted in larger numbers of language minority students entering the U.S. school system in recent decades. These groups are culturally and socio-economically heterogeneous and represent a wide-range of English speaking ability. Students are generally identified as

language minority (LM) if a language other than English is spoken at home. While the definition of a sub category of LM, limited English proficient (LEP), is a subject of debate, students classified as LEP can be thought of as those who have enough difficulty with English that they do not benefit from classes taught entirely in English (Bradby, 1992). This puts them at a great disadvantage in traditional classrooms and creates significant challenges for the schools they attend and the teachers who teach them.

As mentioned above, NAEP assessments do not include LEP students. In 1988, NAEP published a special study assessing reading and math performance of Language Minority students which confirmed the importance of English language competence to academic achievement, but the study has been criticized for not including LEP students. In a recent report, Bradby (1992) builds on this research through her analysis of a nationally representative sample of eighth graders using data from the National Education Longitudinal Study of 1988 (NELS: 88) which includes LEP students.

General achievement results from this study show few surprises (Table 13). More low SES students in both groups failed to achieve basic reading and math performance levels than their higher SES peers. Somewhat surprisingly, there was little overall difference in the proportion of non-language minority and language minority students failing to achieve basic reading and math levels for both groups. However, in reading achievement for both groups, the language minority students with the lowest level of English proficiency were much more likely to fail than those LM students with higher proficiency. This also held true in math for Hispanics, although not for Asians. This study will be expanded through analyses of 1990 and 1992 follow-up surveys.

Teachers

At the time of the writing of this report, we had no data on teacher characteristics specifically in urban elementary schools, so we report only national aggregate data. Much of the general data available on teachers is found in the Schools and Staffing Survey of 1987-88. Table 14 shows the number of teachers by various characteristics taken from this survey. Teachers are relatively evenly distributed among public elementary and secondary schools. The vast majority of public school teachers (86%) are white, with only 8% black, approximately 3% Hispanic, and the remaining 3% made up of Asian American/Pacific Islander, American Indian, or Alaskan Natives. Approximately seven in ten public school teachers are female, a number that has remained fairly consistent since the early 1960's (Table 15). The majority of teachers (67%) are in their 30's and 40's, while 13% are younger than 30 and 18% are over 50. There are more teachers with 10 to 20 years of full-time teaching experience (44.5%) than in any other range.

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Table 14 Here
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The majority of teachers (52.2%) hold Bachelor's degrees and many hold Master's degrees (40%). While more white than black teachers hold Bachelor's degrees, slightly more blacks than whites hold Master's degrees. More elementary school teachers hold Bachelor's than Master's degrees while the distribution of highest degree held is more even for secondary school teachers. The number of teachers earning Master's or specialist degrees has more than doubled since 1961 (Table 15).

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Table 15 Here
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Programs for Students at Risk

The total amount and proportion of federal dollars supporting programs designed to improve education and provide extra services at the preschool, elementary, secondary, and post-high school levels has increased by 13% (in constant dollars) since 1989 (Table 16; from National Goals Panel, 1991). Funding for preschool programs has seen by far the greatest increase during this period, with funding levels rising from nearly $9.2 million in 1989 to $14.2 million in 1991, a total increase of 41%. In spite of the large increase in funding, preschool programs represented the lowest proportion (24%) of the total funding for education/service programs in 1991, compared to school-year programs which received 32% and post-high school programs which received 42% (with 2% of the total funding going to a residual category of programs; Figure 17). A variety of federally funded programs are directed toward prevention or remediation of the learning problems of at-risk students (Tables 17 and 18). The current status of the most important of these is summarized below.

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Tables 16-18 and Figure 17 Here
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Chapter 1/Title I

Compensatory education refers primarily to federal programs targeted toward low achieving, disadvantaged students. The largest compensatory program by far is Chapter 1 (formerly Title I). In the 1991-92 school year, Chapter 1 provided more than six billion dollars to programs serving over 90% of all public school districts and approximately five million children nationwide (LeTendre, 1991; Anderson, 1992); one in every nine students received Chapter 1 services (LeTendre, 1991).

In 1988-89, 43% of Chapter 1 students were white, 27% were black, 25% were Hispanic, 3% were Asian or Pacific Islander, and 2% were American Indian or Alaskan Native. From 1980 to 1989, the percentage of Chapter 1 participants who are Hispanic increased from 15% to 25%, while the percentage of white participants has declined from over 50% in 1980 (Sinclair and Gutmann, 1991). The majority of students served by Chapter 1 are in elementary schools, with 72% of Chapter 1 participants in grades 1-6 in 1988-89 (Figure 18). While the overall participation in Chapter 1 programs has increased substantially during the 1980's (from just under 4.5 million in 1982), the distribution of participants by grade level has remained virtually unchanged (Figure 18).

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Figure 18 Here
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Though funding for Chapter 1 was cut back slightly in 1981 and 1982, and later in 1986, support for the program has doubled since 1980. Most Chapter 1 funds provide instructional services to students in reading, mathematics, and /or language, as is illustrated by Figure 19. Chapter 1 funds are given to schools on the basis of the number of low-income students they serve, but within schools they are used to serve students according to their educational needs, not their poverty level. Because of this, and because non-poor students so outnumber poor ones, the majority (58%) of students receiving Chapter 1 services are not themselves from families in poverty (Figure 20). However, poor students are disproportionate recipients of Chapter 1 services, as are black and Hispanic students.

For the first time, in 1988-89, the U.S. Dept. of Education collected data on the number of students classified as handicapped or limited English proficient (LEP) receiving Chapter 1 services. With 23 states and the District of Columbia reporting (California is a notable exception), 4% of Chapter 1 participants were classified as handicapped and 8% were classified as LEP (Sinclair and Gutmann, 1991).

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Models of Chapter 1 Service Delivery. Two guiding principles of delivery of Chapter 1 services are that only eligible low-achieving students may benefit from these services, and that the services must supplement, not supplant, local educational efforts. The first of these, which typically limits use of Chapter 1 funds to students who score below a certain cut off score on standardized tests (e.g., below the 40th percentile), keeps most schools from using Chapter 1 funds to improve the school overall -- for example, by reducing class size or implementing more effective practices in the school as a whole (the exception is schoolwide projects, described below).

The "supplement, not supplant" requirement generally keeps schools from using Chapter 1 funds to provide services that non-Chapter 1 students receive out of local funds. For example, a district could not provide preschool or summer school programs for low-achieving or disadvantaged students out of Chapter 1 funds if it also provided similar programs for non-Chapter 1 students out of local funds. A small army of state regulators audit Chapter 1 programs to make sure that funds are spent only on eligible students and that they supplement local efforts.

There are five principal models of service delivery used under Chapter 1 funding: pullout, inclass, add-on, replacement, and schoolwide. In pullout, students are taken out of their homeroom classes for 30-40 minute periods, during which time they receive remedial instruction in a subject with which they are having difficulty, usually from a certified Chapter 1 teacher and usually in a class of eight or fewer pupils. In inclass models, the teacher (or, more commonly, an instructional aide) works with eligible students within the classroom.

Add-on programs provide services outside of the regular classroom, as in summer school or after school programs. An increasingly popular option, using Chapter 1 funds to provide pre-kindergarten programs or to extend kindergarten to a full day, might also be considered an add-on model.

Replacement models involve placing Chapter 1 students in self-contained classes in which they receive most or all their instruction. These programs require school districts to provide additional local resources to supplement Chapter 1 funds.

Schoolwide projects are those in which all students in a high-poverty school can benefit from Chapter 1 funds. Until recently, schoolwide projects have been rare, as they could only be used in schools in which at least 75% of students were in poverty and in which the district was willing to provide matching funds to supplement the Chapter 1 allocations. The 1988 Hawkins-Stafford Amendment removed the matching fund requirement, so schoolwide projects are now becoming more common among high-poverty schools. While state reporting on the number of schoolwide projects was incomplete for 1988-89, 27 states reported a total of 589 schools with schoolwide projects. The number of projects in a state ranged from one in several states to 378 in California (Sinclair & Gutmann, 1991).

Although use of inclass, add-on, and replacement models is increasing, Chapter 1 funds still overwhelmingly utilize pullout programs. Figure 21 shows that in elementary schools, pullout designs were used in 84 percent of all Chapter 1 reading programs and 76 percent of math programs, more than all other models combined, in the early 1980's. Pullout has continued to decline, but it is still by far the predominant Chapter 1 model in the 1990's. Part of the reason for this is that pullout models most clearly fulfill the "supplement, not supplant" requirements of Chapter 1 regulations; in inclass models in particular, there is always concern about the possibility that teachers or aides present in the regular classroom will be helping ineligible as well as eligible students.

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The best national assessment of the effects of Title I is the now rather dated Sustaining Effects Study (Carter, 1984), which compared achievement gains made by Title I students in 1976-77 to matched "needy" students and to a representative sample of non-needy students. Figure 22 shows that Title I students did generally make greater gains in reading and math than other needy students, but these gains were not adequate to close the gap between Title I and non-needy students.

Table 19 summarizes the same data in standard deviation units. Note that in comparing Title I and matched needy students, only in first grade did differences exceed 15% of a standard deviation. Title I effects diminished each year, and were no longer detectable in reading after third grade (although small effects were found in math through grade 6). This may be due to the fact that earlier participation in Title I increased the baseline for one-year gains, but it also may indicate that early intervention is simply more effective than remediation late in the elementary years.

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More recent evaluations of the effectiveness of Chapter 1 services have aggregated the results of routine district evaluations, and show gains in normal curve equivalent scores each year. However, such assessments without control groups are flawed by problems of missing data, retention, effects of entry and exit to the program, statistical regression, and other difficulties. *Prospects*, the congressionally mandated longitudinal study of Chapter 1, will provide an updated national evaluation of the program, with the first one-year impact assessment due to appear in 1993.

Head Start

Head Start is a federal compensatory program for students from age three to school entry. Since 1965, Head Start has served a total of 12.5 million children and in 1991 received nearly 2 billion dollars to operate approximately 1,350 projects serving over one half million children nationwide (U.S. Department of Health and Human Services, 1992). Head Start programs typically provide a half-day preschool setting for children from low income families with activities designed to enhance their socio-emotional and cognitive growth. Most programs also provide health, nutrition, and/or family support services (see Zigler & Valentine, 1979; McKey et al., 1985).

Enrollment in Head Start grew from just over one half million in 1965 to close to 700,000 in 1968, at which point it began to decline to a low of 333,000 in 1977. Since 1977, however, enrollments have risen (with some yearly fluctuations) by a quarter of a million children, in part reflecting growth in the population of preschool-age children. The number of children served by Head Start is projected to increase to 622,000 in 1992.

In 1965, Head Start received a congressional appropriation of $96.4 million. This figure rose to $475 million by 1977 and has increased fairly steadily since then. Appropriations for 1990 and 1991 show especially large jumps in Head Start funding over previous years, with a total increase from 1989 to 1991 of $597 million or 44% (in constant dollars). In 1992, Head Start is expected to receive over $2.2 billion in program funds.

In 1985, CSR, Inc. conducted a review/meta-analysis which synthesized over 200 separate evaluations of Head Start programs. They concluded that Head Start does show some statistically significant effects on students' cognitive and socioemotional development. However, the study reported a frequent "fade-out" effect whereby students' cognitive and affective gains disappeared by the end of the first year of regular school (McKey et al., 1985). The national Head Start office reports that a comprehensive assessment of the Head Start program is planned for 1992.

Special Education

Special education services have long been provided to students who have identified handicaps. Since the passage of Public Law 94-142 in 1975, school districts have provided a continuum of services for handicapped students ranging from special schools to special classes within regular schools to various part-time placements. In these programs, students typically receive instruction in very small groups from teachers with certification in special education. Eligibility for special education depends on assessments of individual students' levels of functioning, and a variety of procedural and legal safeguards provided for in PL 94-142 are intended to ensure that students receive appropriate services in the "least restrictive environment."

As shown in Figure 23, the number of students receiving special education services (under the Individuals with Disabilities Act--IDEA -- and under Chapter 1) has increased steadily since 1976. In 1989-90, 4.7 million children and youth received such services, constituting 6.9% of the nation's resident population of 3-21 year olds (for IDEA) and birth-21 year olds (for Chapter 1). The proportional increase between 1976-77 and 1989-90 is 30.4%. Funding for special education (combined IDEA and Chapter 1) also has increased steadily from $373 million in 1977 to nearly $1.7 billion in 1990.

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One of the most important trends in recent years relating to the subject of this paper is a substantial increase in the number of students with mild academic handicaps who are receiving special education services. Table 20 shows that while the percentage of students categorized as physically disabled and mentally retarded has stayed at about the same level over the period 1976-1989, the number of students categorized as learning disabled increased by more than 250%. Almost 90% of this increase represents the entry into the special education system of low achievers who would not have been served in special education in the 1970's. In other words, special education has assumed a substantial burden in trying to meet the needs of students at risk of school failure. Yet research comparing students with mild academic handicaps in special education to similar students left in regular classrooms finds few benefits for this very expensive service (see Leinhardt & Pallay, 1982; Madden & Slavin, 1983).

Trends in the Education of Students at Risk

This is a time of rapid change in education generally and education of at-risk students specifically. Nationally, the most important changes involve *curriculum* and *assessment*. In recent years elementary schools have been trying to move away from the teaching of isolated skills and drill toward more integration of content across disciplines, more problem solving and higher-order thinking skills, and more wholistic approaches to instruction. In reading, schools have rushed to embrace "whole language" approaches, which vary widely in details but tend to de-emphasize basals, phonics, and workbooks and to emphasize instead use of novels, integration of reading and writing, and relatively unstructured, exploratory approaches. Language arts instruction has changed dramatically, to focus more on creative writing rather than language mechanics. Use of writing process models, in which students plan, draft, revise, and ultimately "publish" compositions, has increased substantially. In mathematics, standards promulgated by the National Council of Teachers of Mathematics have had enormous influence in moving teachers toward more use of discovery, problem solving, group work, and other strategies (NCTM, 1989).

Schools serving disadvantaged students have generally been the last to adopt these curricular innovations, partly because of a

lack of resources for staff development and partly because of severe accountability pressures in Chapter 1 schools and urban districts generally which focus teachers on norm-referenced standardized test scores.

In the area of assessment, two important developments are taking place. One is a strong political movement toward the establishment of national standards, with tests at selected grade levels keyed to these standards.

The second is the movement toward "authentic" testing, use of tests that include actual performances (e.g., setting up experiments), integrate content across disciplines, use open-ended rather than multiple-choice formats, and in some cases evaluate "portfolios" of student work over time. The movement in this area has been primarily in state assessment procedures, and such states as Connecticut, Vermont, Maryland, and California are piloting assessment programs radically different from traditional norm-referenced and criterion-referenced measures.

The new state assessment systems put Chapter 1 schools in a quandary, because Chapter 1 continues to require norm-referenced tests. Thus schools serving poor children are increasingly being asked to teach to two quite different sets of standards, with accountability sanctions attached to each.

Another important national trend is a move away from ability grouping. Districts throughout the country are at least discussing and often implementing untracking plans. At the elementary level, between-class ability grouping has not been predominant (McPartland, Coldiron, & Braddock, 1987), and much of the change in this area is a move away from the use of formal reading groups, often tied to a movement toward whole language techniques.

At the same time, there is increasing use of nongraded primary plans that allow for flexible grouping of students according to needs. This movement is connected to a reaction against retention. As many districts (especially those serving disadvantaged students) implemented grade-to-grade promotion standards and insisted on age-appropriate curriculum at every grade in the early 1980's, retention rates often soared. This trend is now reversing as research indicating the harmful effects of retention (e.g., Shepard & Smith, 1989) has become more widely known.

Important changes in school governance are taking place. There is increasing emphasis on site-based management, allowing individual schools more autonomy and decision-making authority and encouraging the participation of teachers (and often parents) in school governance.

Many of the trends having the greatest impact on disadvantaged students are changes taking place in Chapter 1. Among these mentioned earlier are the increased total funding of Chapter 1, the rapid increase in schoolwide projects, and the continuing gradual movement away from pullout.

Another important movement in Chapter 1 is an increased emphasis on program quality rather than on restrictive regulations. This movement has been aided by the 1988 Hawkins-Stafford Amendment's program improvement guidelines, which have focused attention on student outcomes. One element of program quality that has come to the fore is integration between Chapter 1 and regular classroom instruction.

In addition, there has been a continuing trend to concentrate Chapter 1 funds in the poorest schools and the lowest grades. Chapter 1 dollars are increasingly being used to fund preschool, full day kindergarten, and first-grade interventions such as Reading Recovery, to prevent learning problems from developing.

It is important to state once again that major changes in Chapter 1 programs are happening in only a small number of schools; the great majority still use traditional pullout programs much like those of the 1970's. Yet the

percentage of schools using schoolwide projects, early intervention, and other interventions is increasing, and these changes are significantly altering the discussions of effective practice in Chapter 1 even if they do not yet affect a majority of Chapter 1 schools. As Chapter 1 approaches its 1993 reauthorization, these discussions could have major consequences for changes in Chapter 1 regulations and funding patterns.

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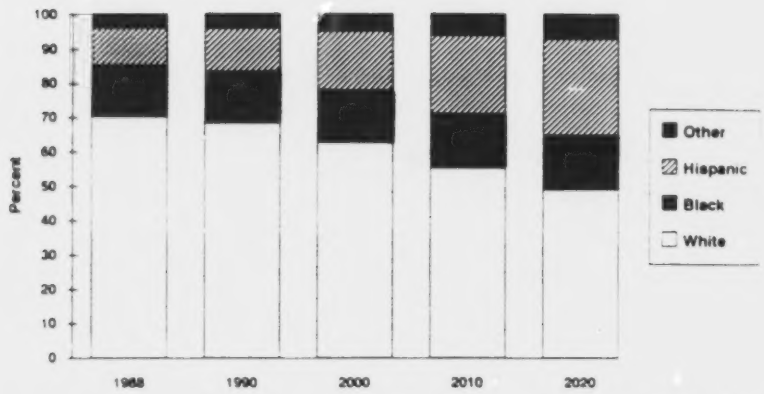
Figure 1



Projected Racial/Ethnic Composition of the U.S. Population Under Age 18, 1988-2020

From Natriello, McDill, and Pallas, 1990, p. 36.

Table 1

School-age populations (U.S. Census projections, Series 18), ages 5, 6, 5-13, and 14-17 years; 50 states and D.C., 1977 to 2002

(In thousands)

Year (July 1)	5 years old	6 years old	5–13 years old	14–17 years old
1977	3,334	3,644	32,855	17,045
1978	3,156	3,343	32,094	16,946
1979	3,092	3,164	31,431	16,611
1980	3,181	3,112	31,095	16,142
1981	3,135	3,192	30,754	15,599
1982	3,285	3,144	30,614	15,041
1983	3,313	3,293	30,410	14,720
1984	3,421	3,321	30,238	14,704
1985	3,548	3,428	30,110	14,865
1986	3,605	3,555	30,351	14,797
1987	3,651	3,612	30,824	14,468
1988	3,671	3,660	31,406	13,983
1989	3,695	3,678	31,835	13,496
1990*	3,752	3,626	32,527	13,280
		Projected		
1991	3,740	3,762	33,000	13,402
1992	3,782	3,750	33,402	13,710
1993	3,857	3,792	33,934	13,873
1994	3,920	3,867	34,310	14,305
1995	3,960	3,931	34,673	14,647
1996	3,977	3,969	34,994	15,005
1997	3,972	3,987	35,290	15,272
1998	3,962	3,982	35,642	15,346
1999	3,951	3,972	35,844	15,497
2000	3,942	3,960	36,044	15,585
2001	3,936	3,949	36,200	15,790
2002	3,935	3,945	36,283	15,935

* Projected.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "United States Population Estimates, by Age, Sex, Race, and Hispanic Origin: 1980 to 1988," *Current Population Reports*, Series P-25, No. 1045, January 1990, and "Projections of the Population of the United States, by Age, Sex, and Race: 1988 to 2080," *Current Population Reports*, Series P-25, No. 1018, January 1989.

From Gerald and Hussar, 1991, p. 186.

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Table 2
Projections of the population, birth to age 24, by race/ethnicity and age: 1990 to 2010

Race/ethnicity and age	Population, in millions				Percent change			
	1990	1995	2000	2010	1985 to 1990	1990 to 1995	1995 to 2000	2000 to 2010
Total, all ages	249.7	259.6	268.0	283.2	4.6	4.0	3.2	5.7
All races	90.1	90.8	92.0	92.5	-1.6	0.8	1.3	0.6
Under 5	19.2	18.6	17.6	18.0	4.0	-3.0	-5.3	2.0
5 to 13	32.2	34.4	34.4	31.9	8.5	7.0	-0.2	-7.3
14 to 17	13.0	14.1	15.4	15.0	-12.1	8.7	9.2	-2.6
18 to 24	25.8	23.7	24.6	27.7	-10.2	-8.1	3.8	12.4
White, non-Hispanic	64.1	63.1	62.5	59.9	-4.1	-1.6	-1.0	-4.1
Under 5	13.2	12.5	11.5	11.2	2.4	-5.4	-8.2	-2.7
5 to 13	22.7	23.8	23.2	20.3	6.1	4.6	-2.2	-12.6
14 to 17	9.3	10.0	10.6	9.9	-15.3	7.5	6.4	-6.9
18 to 24	18.9	16.9	17.2	18.6	-12.4	-10.7	1.8	8.0
Hispanic	9.5	10.5	11.5	13.3	10.0	10.4	9.5	16.0
Under 5	2.3	2.4	2.5	2.9	14.2	5.7	3.5	14.3
5 to 13	3.5	4.0	4.4	4.8	15.8	16.6	8.3	9.0
14 to 17	1.4	1.5	1.8	2.1	5.5	11.5	21.0	13.5
18 to 24	2.4	2.5	2.8	3.6	1.6	5.2	10.2	30.1
Black*	14.1	14.6	15.2	16.1	1.9	3.7	4.1	6.1
Under 5	3.2	3.2	3.1	3.3	5.2	-1.6	-2.7	7.2
5 to 13	5.1	5.7	5.8	5.6	14.6	12.1	1.1	-2.2
14 to 17	1.9	2.2	2.5	2.5	-9.5	11.0	17.9	-0.0
18 to 24	3.8	3.5	3.8	4.6	-8.2	-6.7	6.5	21.9
Other*	3.0	3.3	3.5	4.0	7.6	8.6	7.7	13.7
Under 5	0.6	0.7	0.7	0.8	1.7	10.1	7.8	14.5
5 to 13	1.1	1.2	1.3	1.4	13.2	4.4	7.7	15.6
14 to 17	0.5	0.5	0.5	0.6	7.0	18.0	-3.5	20.0
18 to 24	0.8	0.9	1.0	1.1	5.4	8.0	14.6	7.5

* Includes small numbers of Hispanics.

NOTE: Details may not add to totals because of rounding. Percentages are computed on unrounded data.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Reports, Series P-25, *Projections of the Hispanic Population: 1983 to 2080.*

From U.S. Department of Education, 1991, p. 12.

Table 3

Enrollment in elementary and secondary schools, by organizational level and control of institution, with projections: 50 states and D.C., fall 1977 to fall 2002

(In thousands)

Year	Total			Public			Private		
	K-12[1]	Elementary	Secondary	K-12[1]	Elementary	Secondary	K-12[1]	Elementary	Secondary
1977	48,717	28,788	19,929	43,577	24,991	18,586	5,140	3,797	1,343
1978	47,636	28,749	18,887	42,550	25,017	17,534	5,086	3,732	1,353
1979	46,645	28,591	18,054	41,645	24,891	16,754	[2]5,000	3,700	1,300
1980	46,249	28,212	18,037	40,918	24,220	16,698	5,331	3,992	1,339
1981	45,522	28,174	17,348	40,022	24,074	15,948	[2]5,500	4,100	1,400
1982	45,166	28,023	17,142	39,566	23,823	15,742	[2]5,600	4,200	1,400
1983	44,967	28,264	16,703	39,252	23,949	15,303	5,715	4,315	1,400
1984	44,908	28,395	16,513	39,208	24,095	15,113	[2]5,700	4,300	1,400
1985	44,979	28,470	16,509	39,422	24,275	15,147	5,557	4,195	1,362
1986	45,205	28,266	16,939	39,753	24,150	15,603	[2]5,452	4,116	1,336
1987	45,487	28,537	16,950	40,008	24,305	15,703	[2]5,479	4,232	1,247
1988	45,430	28,451	16,980	40,189	24,415	15,774	[2]5,241	4,036	1,206
1989	45,881	28,782	17,099	40,526	24,620	15,906	[2]5,355	4,162	1,193
1990[3]	46,221	29,680	16,541	41,026	25,614	15,412	5,195	4,066	1,129
					Projected				
1991	46,841	30,070	16,772	41,575	25,943	15,632	5,266	4,127	1,140
1992	47,601	30,442	17,159	42,250	26,250	16,000	5,351	4,192	1,159
1993	48,410	30,800	17,610	42,971	26,550	16,421	5,439	4,250	1,189
1994	49,279	31,130	18,149	43,749	26,830	16,919	5,530	4,300	1,230
1995	50,054	31,460	18,594	44,442	27,115	17,327	5,612	4,345	1,267
1996	50,759	31,817	18,942	45,074	27,433	17,641	5,685	4,384	1,301
1997	51,331	32,081	19,251	45,585	27,659	17,926	5,746	4,422	1,325
1998	51,750	32,364	19,386	45,955	27,899	18,056	5,795	4,465	1,330
1999	52,110	32,551	19,559	46,276	28,061	18,215	5,834	4,490	1,344
2000	52,408	32,691	19,715	46,539	28,175	18,364	5,867	4,516	1,351
2001	52,679	32,764	19,915	46,782	28,229	18,553	5,897	4,535	1,362
2002	52,996	32,783	20,213	47,068	28,238	18,830	5,928	4,545	1,383

[1] Includes most kindergarten and some nursery school enrollment.
[2] Estimated by NCES.
[3] Estimate.

NOTE: Some data have been revised from previously published figures. Projections are based on data through 1989. Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Statistics of Public Elementary and Secondary Schools*; Common Core of Data surveys; "Selected Public and Private Elementary and Secondary Education Statistics," *NCES Bulletin*, October 23, 1979; "Private Elementary and Secondary Education, 1983: Enrollment, Teachers, and Schools," *NCES Bulletin*, December 1984; 1985 Private School Survey; "Key Statistics for Private Elementary and Secondary Education: School Year 1988–89," *Early Estimates*; "Key Statistics for Private Elementary and Secondary Education: School Year 1989–90," *Early Estimates*; and "Key Statistics for Public and Private Elementary and Secondary Education: School Year 1990–91," *Early Estimates*. (This table was prepared April 1991.)

From Gerald and Hussar, 1991, p.10.

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Table 4

Number and percentage of own children under 18 years old in married-couple and single-parent families, by race of family householder: 1950 to 1989

Number and percentage of own children under 18 years old in married-couple and single-parent families, by race of family householder: 1950 to 1989

[Numbers in thousands]

Year	Number of own [1] children under 18	Number and percent of own children under 18			
		Married-couple families		Single-parent families	
		Number	Percent	Number	Percent
			All races		
1950	42,253	39,252	92.9	3,002	7.1
1955	54,712	48,655	88.9	6,057	11.1
1960	64,519	—	—	—	—
1965	66,014	59,557	90.2	6,457	9.8
1970	66,714	59,143	88.7	7,571	11.3
1975	62,733	52,611	83.9	10,122	16.1
1980	57,700	46,810	81.1	10,890	18.9
1985	57,658	45,556	79.0	12,102	21.0
1988	57,824	45,342	78.4	12,482	21.6
1989	58,876	45,959	78.1	12,918	21.9
			White [2]		
1970	57,446	52,791	91.9	4,655	8.1
1975	53,608	47,086	87.8	6,522	12.2
1980	48,739	41,903	86.0	6,836	14.0
1985	47,975	40,218	83.8	7,757	16.2
1988	48,000	39,915	83.2	8,085	16.8
1989	48,380	40,229	83.2	8,151	16.8
			Black [2]		
1970	8,462	5,619	66.4	2,843	33.6
1975	8,095	4,598	56.8	3,497	43.2
1980	7,724	3,845	49.8	3,879	50.2
1985	7,741	3,689	47.7	4,052	52.3
1988	7,780	3,744	48.1	4,035	51.9
1989	8,022	3,676	45.8	4,347	54.2
			Hispanic [3]		
1980	4,631	3,643	78.7	988	21.3
1985	5,663	4,171	73.7	1,492	26.3
1988	6,254	4,516	72.2	1,737	27.8
1989	6,355	4,552	71.6	1,804	28.4

—Data not available.

[1] "Own" children in a family are sons and daughters, including stepchildren and adopted children, of the householder. Excludes householders under 18 years, subfamily reference persons, and their spouses.

[2] Includes Hispanics.

[3] Hispanics may be of any race.

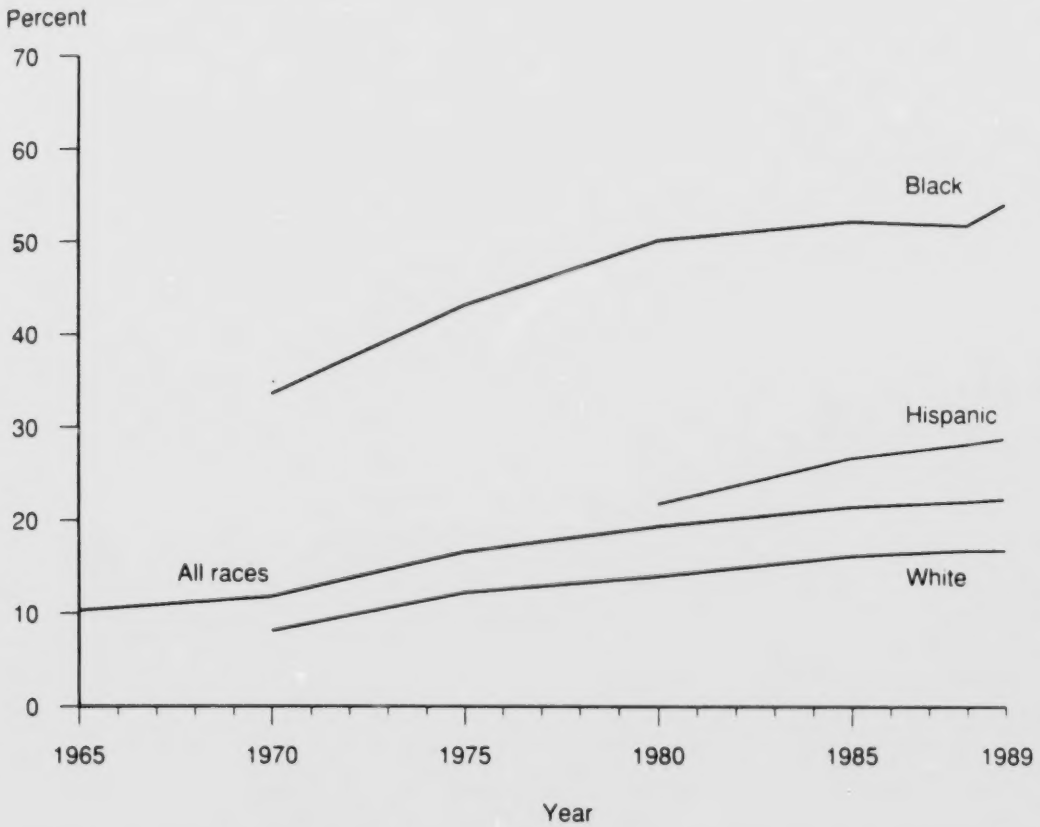
NOTE: Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Reports, Series P-20, *Household and Family Characteristics*, various years; and *Marital Status and Living Arrangements: March 1988 and 1989*, nos 433 and 445.

From U.S. Department of Education, 1991, p. 28.

Figure 2

Percentage of own children living in single-parent families, by race of family householder: 1965 to 1989



SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Reports, Series P-20, *Household and Family Characteristics*, various years; and *Marital Status and Living Arrangements: March 1988 and 1989*, nos. 443 and 445.

From U.S. Department of Education, 1991, p. 29.

Figure 3

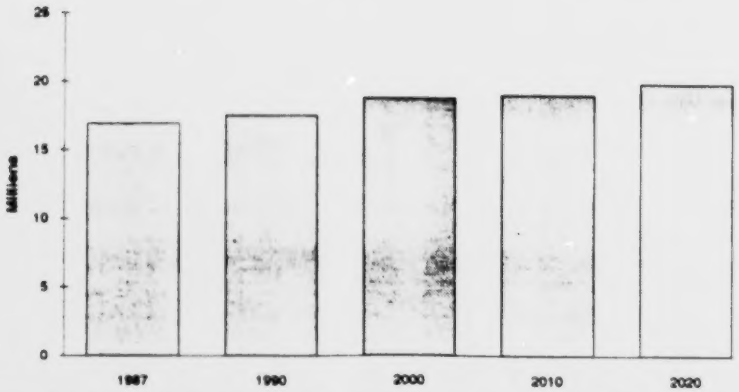


FIGURE 3.3 Projected Number of U.S. Children Not Living with Both Parents, 1987-2020 (in millions)

From Natriello, McDill, and Pallas, 1990, p. 38.

Table 5

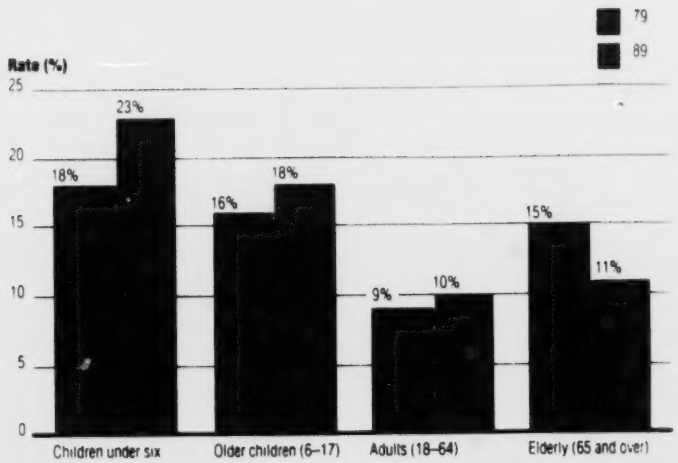
Number and percentage of children under 18 years old living in poverty, by family status and race/ethnicity of family householder: 1960 to 1989

Year	All families		Families with female householder,[1] no husband present		Percent of all poverty children in families with female householder, no husband present
	Number of children under 18 in poverty, in thousands	Percent of children under 18 in poverty	Number of children under 18 in poverty, in thousands	Percent of children under 18 in poverty	
			All races		
1960	17,288	26.5	4,095	68.4	23.7
1965	14,388	20.7	4,562	64.2	31.7
1970	10,235	14.9	4,689	53.0	45.8
1975	10,882	16.8	5,597	52.7	51.4
1980	11,114	17.9	5,866	50.8	52.8
1985	12,483	20.1	6,716	53.6	53.8
1987	12,275	19.7	7,074	54.7	57.6
1988	11,935	19.0	7,082	53.2	59.3
1989	12,001	19.0	6,808	51.1	56.7
			White[2]		
1960	11,229	20.0	2,357	59.9	21.0
1965	8,595	14.4	2,321	52.9	27.0
1970	6,138	10.5	2,247	43.1	36.6
1975	6,748	12.5	2,813	44.2	41.7
1980	6,817	13.4	2,813	41.6	41.3
1985	7,838	15.6	3,372	45.2	43.0
1987	7,398	14.7	3,474	45.8	47.0
1988	7,095	14.0	3,550	45.1	50.0
1989	7,164	14.1	3,320	42.8	46.3
			Black[2]		
1959	5,022	65.5	1,475	81.6	29.4
1967	4,558	47.4	2,265	72.4	49.7
1970	3,922	41.5	2,383	67.7	60.8
1975	3,884	41.4	2,724	66.0	70.1
1980	3,906	42.1	2,944	64.8	75.4
1985	4,057	43.1	3,181	66.9	78.4
1987	4,234	44.4	3,394	68.3	80.2
1988	4,148	42.8	3,301	65.2	79.6
1989	4,257	43.2	3,256	62.9	76.5
			Hispanic[3]		
1973	1,364	27.8	606	68.7	44.4
1975	1,619	33.1	694	68.4	42.9
1980	1,718	33.0	809	65.0	47.1
1985	2,512	39.6	1,247	72.4	49.6
1987	2,606	38.9	1,241	70.1	47.6
1988	2,576	37.3	1,265	68.6	49.1
1989	2,496	35.5	1,163	65.0	46.6

[1] The householder is the person in whose name the housing unit is owned or rented.
[2] Includes Hispanics.
[3] Hispanics may be of any race.
SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Reports, Series P-20, *Characteristics of the Populations Below the Poverty Level*, various years; and Series P-60, *Money Income and Poverty Status of Families and Persons in the United States*, various years.

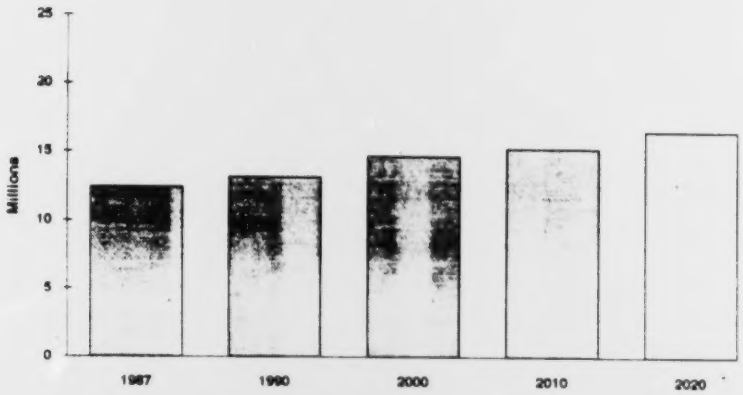
From U.S. Department of Education, 1991, p. 38.

Figure 4



From National Center for Children in Poverty, 1991, p. 2.

Figure 5



Projected Number of U.S. Children in Poverty, 1987–2020 (in millions)

From Natriello, McDill, and Pallas, 1990, p. 37.

Table 6

Number and percentage of own children, by type of family and family income: 1987

[Numbers in thousands]

Total family income	Families with own children under 18 years old						Average number of own[3] children per family with own children under 18
	Total[1]		Married-couple families		Female-headed households,[2] no husband present		
	Number of children	Percent of children	Number of children	Percent of children	Number of children	Percent of children	
All families	57,824	100.0	45,342	100.0	10,906	100.0	1.81
Under $10,000	8,929	15.4	2,730	6.0	5,838	53.5	1.98
$10,000 to $19,999	9,641	16.7	6,486	14.3	2,757	25.3	1.82
$20,000 to $29,999	9,997	17.3	8,332	18.4	1,373	12.6	1.80
$30,000 to $39,999	9,928	17.2	9,135	20.1	553	5.1	1.81
$40,000 to $49,999	7,396	12.8	7,042	15.5	215	2.0	1.82
$50,000 to $74,999	8,240	14.3	8,018	17.7	116	1.1	1.72
$75,000 and over	3,693	6.4	3,598	7.9	55	0.5	1.65

[1] Includes data for male-headed households not shown separately.
[2] The income reported for these women includes child support payments received.
[3] "Own" children in a family are sons and daughters, including stepchildren and adopted children, of the householder.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Reports, Series P-60, *Money Income of Households, Families, and Persons in the United States, 1987.*

From U.S. Department of Education, 1991, p. 36.

Table 7

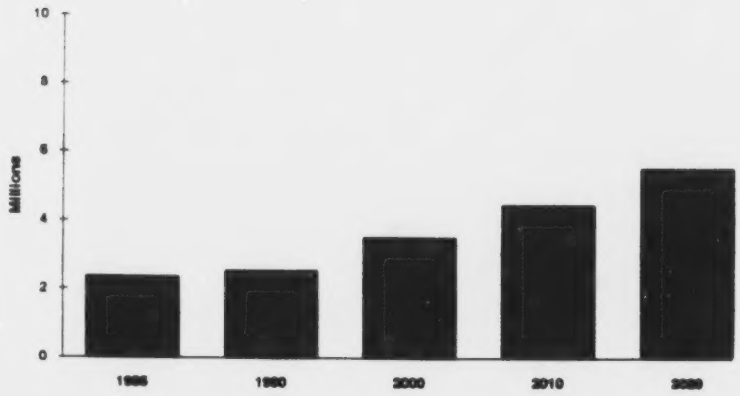
Employment status of parents with own children under 18 years old, by type of family: 1975 to 1988

Type of family	1975	1980	1985	1988
		Number, in thousands		
Total families	55,698	59,910	63,232	65,670
Total families with own children under 18	30,060	31,325	31,496	32,347
Husband-wife families (with own children under 18)	25,236	24,974	24,225	24,611
Both parents employed	9,358	11,925	12,844	14,271
Only father employed	13,441	10,975	9,227	8,365
Only mother employed	895	852	960	1,005
Neither parent employed	1,543	1,222	1,194	968
Female-headed families (single mothers with own children under 18)	4,400	5,718	6,345	6,666
Mother in labor force	2,635	3,833	4,302	4,481
Mother not employed	329	421	561	462
Male-headed families (single fathers with own children under 18)	424	633	926	1,070
Father in labor force	369	561	834	965
Father not employed	42	47	84	95
		Percentage distribution		
Total families	100.0	100.0	100.0	100.0
Total families with own children under 18	54.0	52.3	49.8	49.3
Husband-wife families (with own children under 18)	100.0	100.0	100.0	100.0
Both parents employed	37.1	47.7	53.0	58.0
Only father employed	53.3	43.9	38.1	34.0
Only mother employed	3.5	3.4	4.0	4.1
Neither parent employed	6.1	4.9	4.9	3.9
Female-headed families (single mothers with own children under 18)	100.0	100.0	100.0	100.0
Mother in labor force	59.9	67.0	67.8	67.2
Mother not employed	7.5	7.4	8.8	6.9
Male-headed families (single fathers with own children under 18)	100.0	100.0	100.0	100.0
Father in labor force	87.0	88.6	90.1	90.2
Father not employed	9.9	7.4	9.1	8.9

NOTE: Includes parents working both full-time and part-time. "Own children" in a family are sons and daughters, including stepchildren and adopted children, of the householder.

From U.S. Department of Education, 1991, p. 44.

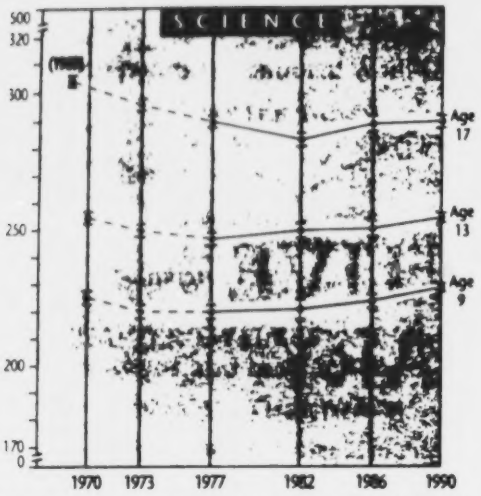
Figure 6



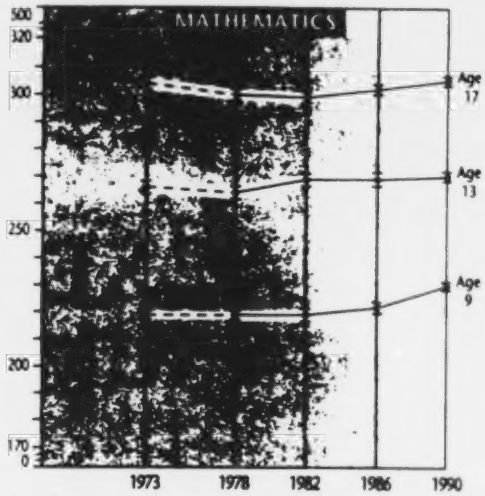
Projected Number of U.S. Children with a Primary Language Other Than English, 1986–2020 (in millions)

From Natriello, McDill, and Pallas, 1990, p. 39.

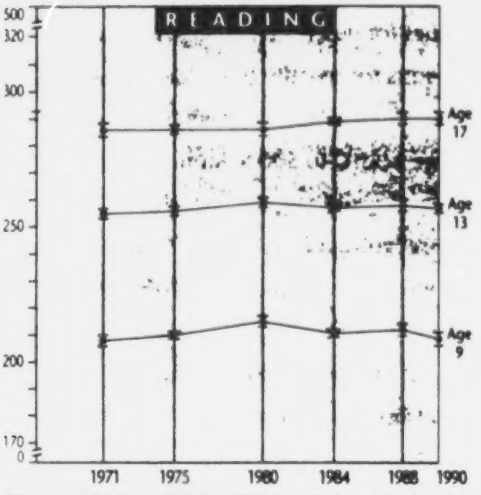
Figure 7
National Trends in Average Achievement in Science, Mathematics, Reading, and Writing



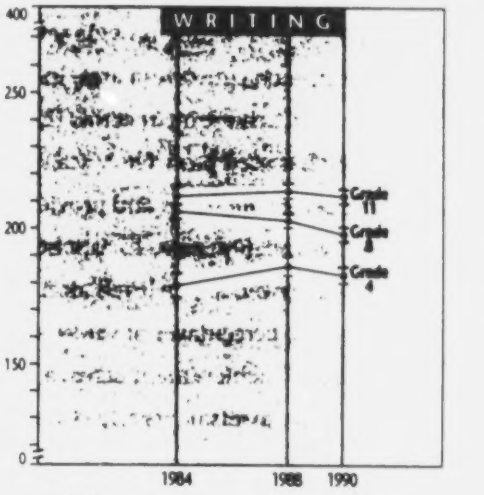
	1970	1973	1977	1982	1986	1990
Age 17	305(1.0)*	296(1.0)*†	290(1.0)†	283(1.2)*†	289(1.4)†	290(1.1)†
Age 13	255(1.1)	250(1.1)*†	247(1.1)*†	250(1.3)*	251(1.4)	255(0.9)
Age 9	225(1.2)	220(1.2)*†	220(1.2)*†	221(1.8)*	224(1.2)*	229(0.8)



	1973	1978	1982	1986	1990
Age 17	304(1.1)	300(1.0)*	299(0.9)*†	302(0.9)	305(0.9)
Age 13	266(1.1)*	264(1.1)*	269(1.1)	269(1.2)	270(0.9)†
Age 9	219(0.8)*	219(0.8)*	219(1.1)*	222(1.0)*	230(0.8)†



	1971	1975	1980	1984	1988	1990
Age 17	285(1.2)*	286(0.8)*	286(1.2)	289(0.6)	290(1.0)†	290(1.1)†
Age 13	255(0.9)	256(0.8)	259(0.9)	257(0.5)	258(1.0)	257(0.8)
Age 9	208(1.0)	210(0.7)	215(1.0)*†	211(0.7)	212(1.1)	209(1.2)



	1984	1988	1990
Grade 11	212(1.7)	214(1.4)	212(1.3)
Grade 8	206(1.4)*	203(1.3)*	198(1.3)
Grade 4	179(2.2)	186(1.8)	183(1.5)

Ī 95 percent confidence interval [- - -] Extrapolated from previous NAEP analyses.

* Statistically significant difference from 1990 and † statistically significant difference from 1969–70 for science, 1973 for mathematics, and 1971 for reading, as determined by an application of the Bonferroni procedure, where alpha equals .05 per set of comparisons. The standard errors of the estimated proficiencies appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample.

From Mullis et al., 1991, p. 2.

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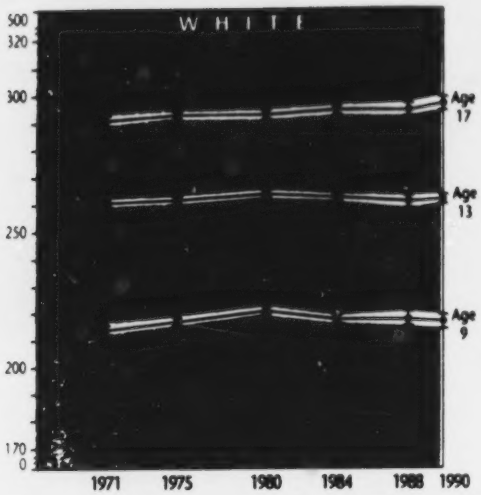
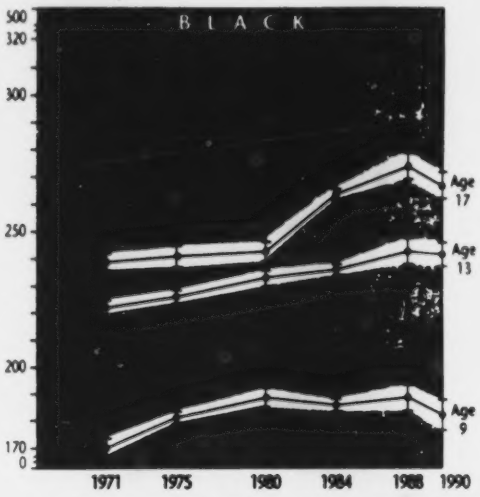
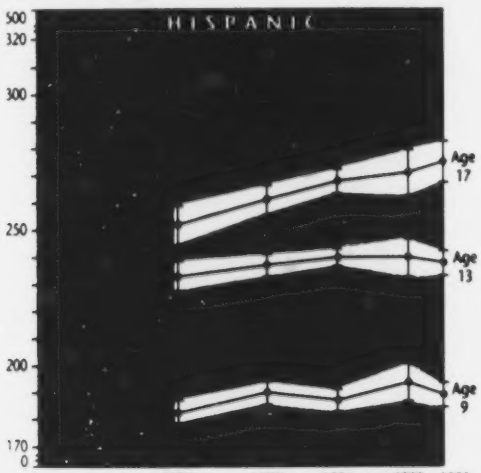
Figure 8
Trends in Average Reading Proficiency by Race/Ethnicity, 1971 to 1990





	1971	1975	1980	1984	1988	1990
Age 17	**291(1.0)***	**293(0.6)**	**293(0.9)**	**295(0.7)†**	**295(1.2)**	**297(1.2)†**
	87(1.3)*	84(1.0)*	83(1.6)*	77(0.6)*†	77(0.6)*†	74(0.5)†
Age 13	**261(0.7)**	**262(0.7)**	**264(0.7)†**	**263(0.6)**	**261(1.1)**	**262(0.9)**
	84(1.4)*	81(1.2)*	80(1.8)*	77(0.6)*†	76(0.7)†	74(0.8)†
Age 9	**214(0.9)**	**217(0.7)**	**221(0.8)†**	**218(0.8)†**	**218(1.4)**	**217(1.3)**
	84(1.4)*	80(1.2)*	79(1.3)*	75(1.2)†	75(1.0)†	74(1.0)†

	1971	1975	1980	1984	1988	1990
Age 17	**239(1.7)***	**241(2.0)***	**243(1.8)***	**264(1.0)†**	**274(2.4)†**	**267(2.3)†**
	11(1.2)*	11(0.8)*	12(1.4)*	14(0.2)*	15(0.3)†	16(0.3)†
Age 13	**222(1.2)***	**226(1.2)***	**233(1.5)*†**	**236(1.0)†**	**243(2.4)†**	**242(2.2)†**
	15(1.4)	13(0.9)*	14(1.3)	14(0.2)*	15(0.3)	15(0.2)
Age 9	**170(1.7)***	**181(1.2)†**	**189(1.8)†**	**186(1.1)†**	**189(2.4)†**	**182(2.9)†**
	14(1.3)	13(0.8)	14(1.0)	16(0.5)	16(0.7)	16(0.6)



	1975	1980	1984	1988	1990
Age 17	**252(3.6)***	**261(2.7)***	**268(2.2)†**	**271(4.3)†**	**275(3.6)†**
	3(0.6)	4(0.6)	7(0.7)	6(0.5)	7(0.4)
Age 13	**233(3.0)**	**237(2.0)**	**240(1.7)**	**240(3.5)**	**238(2.3)**
	5(0.8)*	6(1.0)	7(0.7)	6(0.6)	8(0.5)†
Age 9	**183(2.2)**	**190(2.3)**	**187(2.1)**	**194(3.5)**	**189(2.3)**
	5(0.8)	6(0.8)	7(1.4)	6(1.0)	6(0.6)

Note: Average proficiencies are in **bold face** type. For each age, the second row of data lists the percentages of students in the total population from each subgroup.

‡ 95 percent confidence interval.

* Statistically significant difference from 1990 and † statistically significant difference from 1971 (for White and Black students) or 1975 (for Hispanic students), as determined by an application of the Bonferroni procedure, where alpha equals .05 per set of comparisons. (No significance test is reported when the percentage of students is either > 95.0 or < 5.0.) The standard errors of the estimated proficiencies and percentages appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. Percentages do not total 100 percent because Asian/Pacific Islander and American Indian student data were analyzed separately. For Asian/Pacific Islander students and American Indian students, the sample sizes were insufficient to permit robust trend estimates.

From Mullis et al., 1991, p. 112.

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Table 8
NAEP Reading Trend Assessment--Age 9
Average Reading Proficiency Across Assessment Years

	1971	1975	1980	1984	1988	1990
-- TOTAL --	207.6(1.0)	210.0(0.7)	215.0(1.0)	210.9(0.7)	211.8(1.1)	209.2(1.2)
SEX						
MALE	201.2(1.1)	204.3(0.8)	210.0(1.1)	207.5(0.8)	207.5(1.4)	204.0(1.7)
FEMALE	213.9(1.0)	215.8(0.8)	220.1(1.1)	214.2(0.8)	216.3(1.3)	214.5(1.2)
RACE/ETHNICITY						
WHITE	214.0(0.9)	216.6(0.7)	221.3(0.8)	218.2(0.8)	217.7(1.4)	217.0(1.3)
BLACK	170.1(1.7)	181.2(1.2)	189.3(1.8)	185.7(1.1)	188.5(2.4)	181.8(2.9)
HISPANIC	*****(0.0)	182.7(2.2)	190.2(2.3)	187.2(2.1)	193.7(3.5)	189.4(2.3)
OTHER	193.5(3.8)	207.8(4.1)	218.5(3.8)	223.8(2.5)	228.4(5.4)	205.5(4.4)
REGION						
NORTHEAST	213.0(1.7)	214.8(1.3)	221.1(2.1)	215.7(1.7)	215.2(2.6)	217.4(2.2)
SOUTHEAST	193.9(2.9)	201.1(1.2)	210.3(2.3)	204.3(1.6)	207.2(2.1)	197.4(3.2)
CENTRAL	214.9(1.2)	215.5(1.2)	216.7(1.4)	215.3(1.5)	218.2(2.2)	212.7(2.0)
WEST	205.0(2.0)	207.0(2.0)	212.8(1.8)	207.8(1.5)	207.9(2.6)	209.6(2.8)
TYPE OF COMMUNITY						
EXTREME RURAL	200.2(3.3)	204.2(2.5)	211.8(1.7)	201.2(3.4)	213.7(4.2)	209.4(4.5)
DISADVANTAGED URBAN	179.2(2.7)	184.2(2.5)	187.6(2.1)	191.5(1.6)	192.0(5.5)	186.1(4.7)
ADVANTAGED URBAN	229.8(1.3)	227.3(1.5)	232.5(1.4)	230.8(1.7)	222.4(2.7)	227.1(3.3)
OTHER	207.8(1.1)	210.9(0.8)	214.5(1.1)	211.3(0.8)	211.3(1.4)	209.8(1.5)
PARENTS' EDUCATION LEVEL						
NOT GRADUATED H.S.	188.8(1.5)	189.9(1.3)	194.3(1.8)	195.1(1.4)	192.5(4.9)	192.6(3.2)
GRADUATED H.S.	207.8(1.2)	211.3(0.9)	213.0(1.3)	208.9(1.0)	210.8(2.2)	209.1(1.8)
POST H.S.	223.9(1.1)	221.5(0.9)	226.0(1.1)	222.9(0.9)	220.0(1.7)	217.7(2.0)
DO NOT KNOW	197.4(1.0)	203.1(0.8)	208.1(1.0)	204.4(0.7)	204.4(1.5)	201.4(1.5)
TYPE OF SCHOOL						
PUBLIC	*****(0.0)	*****(0.0)	213.5(1.1)	209.4(0.8)	210.2(1.2)	207.5(1.4)
PRIVATE	*****(0.0)	*****(0.0)	227.0(1.8)	222.8(1.6)	223.4(3.0)	228.3(3.3)
QUARTILES						
UPPER	252.6(0.5)	251.3(0.7)	255.0(0.8)	257.9(0.4)	259.1(1.6)	261.3(1.1)
MIDDLE TWO	210.6(0.4)	213.1(0.3)	218.0(0.3)	211.8(0.3)	212.8(0.7)	209.4(0.6)
LOWER	156.6(0.7)	162.8(0.5)	169.3(1.0)	161.6(0.6)	162.7(1.6)	156.5(1.5)

From Mullis et al., 1991, p. 313.

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Figure 9
Levels of Reading Proficiency

LEVEL 350 LEARN FROM SPECIALIZED READING MATERIALS

Readers at this level can extend and restructure the ideas presented in specialized and complex texts. Examples include scientific materials, literary essays, and historical documents. Readers are also able to understand the links between ideas, even when those links are not explicitly stated, and to make appropriate generalizations. Performance at this level suggests the ability to synthesize and learn from specialized reading materials.

LEVEL 300 UNDERSTAND COMPLICATED INFORMATION

Readers at this level can understand complicated literary and informational passages, including material about topics they study at school. They can also analyze and integrate less familiar material and provide reactions to and explanations of the text as a whole. Performance at this level suggests the ability to find, understand, summarize, and explain relatively complicated information.

LEVEL 250 INTERRELATE IDEAS AND MAKE GENERALIZATIONS

Readers at this level use intermediate skills and strategies to search for, locate, and organize the information they find in relatively lengthy passages and can recognize paraphrases of what they have read. They can also make inferences and reach generalizations about main ideas and author's purpose from passages dealing with literature, science, and social studies. Performance at this level suggests the ability to search for specific information, interrelate ideas, and make generalizations.

LEVEL 200 PARTIAL SKILLS AND UNDERSTANDING

Readers at this level can locate and identify facts from simple informational paragraphs, stories, and news articles. In addition, they can combine ideas and make inferences based on short, uncomplicated passages. Performance at this level suggests the ability to understand specific or sequentially related information.

LEVEL 150 SIMPLE, DISCRETE READING TASKS

Readers at this level can follow brief written directions. They can also select words, phrases, or sentences to describe a simple picture and can interpret simple written clues to identify a common object. Performance at this level suggests the ability to carry out simple, discrete reading tasks.

From Mullis et al., 1991, p. 123.

Table 8.1
NAEP 1990 Reading Trend Assessment--Age 9
Percentage of Students with Reading Proficiency
At or Above Anchor Level 150

	1971	1975	1980	1984	1988	1990
--TOTAL --	90.6(0.5)	93.1(0.4)	94.6(0.4)	92.3(0.3)	92.7(0.7)	90.1(0.9)
SEX						
MALE	87.9(0.7)	91.0(0.5)	92.9(0.5)	90.4(0.5)	90.4(0.9)	87.9(1.4)
FEMALE	93.2(0.5)	95.3(0.3)	96.4(0.4)	94.2(0.4)	94.9(1.0)	92.4(1.1)
RACE/ETHNICITY						
WHITE	94.0(0.4)	96.0(0.3)	[illegible]2)	95.4(0.3)	95.1(0.7)	93.5(0.9)
BLACK	69.7(1.7)	80.7(1.1)	[illegible]	81.3(1.0)	83.2(2.4)	76.9(2.7)
HISPANIC	****(0.0)	80.8(2.5)	8[illegible]	82.0(2.1)	85.6(3.5)	83.7(1.8)
OTHER	86.0(1.9)	92.4(1.9)	96[illegible]	95.4(1.1)	96.9(1.8)	89.3(3.1)
REGION						
NORTHEAST	93.4(0.9)	94.1(0.5)	96.4(0.7)	94.2(0.6)	92.8(1.3)	92.6(1.6)
SOUTHEAST	82.7(1.9)	89.8(0.8)	93.0(0.9)	89.7(0.8)	91.3(1.7)	84.5(2.4)
CENTRAL	93.6(0.5)	95.6(0.5)	95.8(0.7)	94.3(0.6)	95.4(0.7)	92.7(1.4)
WEST	91.0(1.1)	92.4(1.0)	93.6(0.8)	90.9(0.9)	91.5(1.6)	90.6(1.3)
TYPE OF COMMUNITY						
EXTREME RURAL	86.5(1.9)	90.2(1.5)	94.4(1.1)	87.5(2.1)	92.9(3.4)	89.3(2.6)
DISADVANTAGED URBAN	75.8(2.4)	81.4(1.7)	83.4(2.1)	84.0(1.3)	84.0(4.0)	78.9(3.2)
ADVANTAGED URBAN	97.8(0.4)	98.2(0.4)	98.9(0.3)	98.1(0.4)	97.2(1.0)	97.0(1.1)
OTHER	91.4(0.6)	94.0(0.4)	94.8(0.5)	93.2(0.4)	92.5(1.0)	90.8(1.1)
PARENTS' EDUCATION LEVEL						
NOT GRADUATED H.S.	82.3(1.4)	84.4(1.2)	85.8(1.5)	86.2(1.3)	84.4(4.4)	83.0(3.8)
GRADUATED H.S.	92.1(0.7)	94.[illegible](0.5)	94.9(0.6)	92.8(0.7)	92.3(2.1)	91.2(1.3)
POST H.S.	96.1(0.4)	96.5(0.4)	97.3(0.4)	95.4(0.4)	95.1(0.8)	92.6(1.2)
DO NOT KNOW	86.7(0.7)	91.5(0.5)	92.7(0.9)	91.0(0.4)	90.9(1.2)	87.6(1.4)
TYPE OF SCHOOL						
PUBLIC	*****(0.0)	*****(0.0)	94.2(0.4)	91.7(0.4)	92.1(0.8)	89.6(1.0)
PRIVATE	*****(0.0)	*****(0.0)	98.1(0.4)	96.8(0.5)	96.7(1.3)	96.2(1.7)
QUARTILES						
UPPER	100.0(0.0)	100.0(0.0)	100.0(0.0)	100.0(0.0)	100.0(0.0)	100.0(0.0)
MIDDLE TWO	99.6(0.1)	100.0(0.0)	99.9(0.1)	99.9(0.1)	99.7(0.2)	99.1(0.5)
LOWER	63.1(1.1)	72.6(1.0)	78.7(1.2)	69.7(0.9)	71.3(2.3)	62.2(3.0)

From Mullis et al., 1991, p. 316.

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Table 8.2
NAEP 1990 Reading Trend Assessment--Age 9
Percentage of Students with Reading Proficiency
At or Above Anchor Level 200

	1971	1975	1980	1984	1988	1990
-- TOTAL --	58.7(1.0)	62.1(0.8)	67.7(1.0)	61.5(0.7)	62.6(1.3)	58.9(1.3)
SEX						
MALE	52.7(1.2)	56.2(1.0)	62.7(1.1)	58.0(0.9)	58.4(1.8)	53.8(1.9)
FEMALE	64.6(1.1)	68.1(0.8)	72.7(1.0)	65.2(0.8)	66.9(1.4)	64.2(1.2)
RACE/ETHNICITY						
WHITE	65.0(1.0)	69.0(0.8)	74.2(0.7)	68.6(0.8)	68.4(1.6)	68.0(1.4)
BLACK	22.0(1.5)	31.6(1.5)	41.3(1.9)	36.6(1.5)	38.4(2.9)	33.9(3.4)
HISPANIC	****(0.0)	34.6(3.0)	41.6(2.6)	39.6(2.2)	45.9(3.3)	40.9(2.7)
OTHER	42.0(5.2)	58.8(5.3)	72.9(3.7)	72.7(2.9)	77.1(4.8)	58.8(4.5)
REGION						
NORTHEAST	64.1(1.6)	66.8(1.5)	73.5(2.1)	66.5(1.5)	65.7(2.5)	65.4(2.8)
SOUTHEAST	45.9(2.8)	53.1(1.2)	62.6(2.4)	54.8(1.6)	58.0(2.6)	48.2(3.3)
CENTRAL	65.7(1.4)	67.4(1.3)	69.4(1.2)	66.0(1.6)	66.4(1.7)	62.6(2.0)
WEST	55.6(1.8)	59.5(2.1)	65.9(1.5)	58.9(1.5)	59.5(3.5)	59.6(2.9)
TYPE OF COMMUNITY						
EXTREME RURAL	51.2(3.2)	56.3(2.7)	64.4(2.0)	53.2(3.0)	64.5(4.1)	59.1(4.4)
DISADVANTAGED URBAN	30.9(2.8)	34.6(2.9)	39.7(2.0)	42.5(1.8)	43.3(5.7)	37.5(6.3)
ADVANTAGED URBAN	79.0(1.4)	79.5(1.6)	84.0(1.2)	80.3(1.7)	72.9(3.2)	74.4(3.4)
OTHER	59.2(1.1)	63.1(0.9)	67.4(1.0)	62.2(0.9)	62.1(1.8)	59.6(1.4)
PARENTS' EDUCATION LEVEL						
NOT GRADUATED H.S.	39.4(1.7)	41.8(1.4)	47.5(1.6)	47.4(2.1)	44.0(7.1)	42.8(4.1)
GRADUATED H.S.	59.6(1.3)	64.1(1.0)	68.5(1.3)	60.0(1.3)	62.7(3.4)	59.4(2.9)
POST H.S.	73.7(1.1)	73.3(1.0)	77.8(1.1)	71.9(0.9)	69.7(1.3)	65.9(2.0)
DO NOT KNOW	49.3(1.2)	55.1(1.0)	59.0(1.1)	55.9(1.0)	58.1(1.9)	52.7(1.9)
TYPE OF SCHOOL						
PUBLIC	****(0.0)	*****(0.0)	68.2(1.0)	60.0(0.8)	61.1(1.5)	57.5(1.5)
PRIVATE	****(0.0)	*****(0.0)	79.3(1.8)	73.9(1.7)	73.5(2.5)	74.8(3.0)
QUARTILES						
UPPER	98.7(0.3)	99.2(0.2)	99.6(0.2)	99.8(0.1)	99.7(0.3)	99.7(0.3)
MIDDLE TWO	68.4(1.0)	72.8(0.5)	80.8(0.8)	70.2(0.8)	72.4(1.1)	65.8(1.3)
LOWER	3.0(0.5)	3.8(0.4)	8.9(0.9)	5.0(0.4)	8.0(1.2)	4.3(1.1)

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From Mullis et al., 1991, p. 317.

Table 8.3
NAEP 1990 Reading Trend Assessment--Age 9
Percentage of Students with Reading Proficiency
At or Above Anchor Level 250

	1971	1975	1980	1984	1988	1990
-- TOTAL --	15.6(0.6)	14.8(0.6)	17.7(0.8)	17.2(0.6)	17.5(1.1)	18.4(1.0)
SEX						
MALE	12.0(0.6)	11.5(0.6)	14.6(0.9)	15.9(0.7)	15.8(1.4)	16.1(1.2)
FEMALE	19.2(0.8)	17.7(0.8)	20.7(1.0)	18.4(0.7)	19.1(1.2)	20.8(1.2)
RACE/ETHNICITY						
WHITE	18.0(0.7)	17.4(0.7)	21.0(0.9)	20.9(0.7)	20.3(1.5)	22.6(1.2)
BLACK	1.6(0.5)	2.0(0.3)	4.1(0.6)	4.5(0.5)	5.6(1.2)	5.2(1.5)
HISPANIC	****(0.0)	2.6(0.5)	5.0(1.4)	4.3(0.6)	8.6(2.3)	5.8(2.0)
OTHER	8.7(2.1)	14.5(3.5)	18.7(4.3)	24.7(2.6)	29.8(6.9)	13.1(3.9)
REGION						
NORTHEAST	17.9(0.9)	17.7(1.0)	21.6(2.2)	19.8(1.3)	20.8(1.9)	23.9(1.9)
SOUTHEAST	10.2(1.1)	9.9(0.8)	15.3(1.5)	13.8(0.9)	14.7(1.4)	12.8(2.7)
CENTRAL	19.7(0.9)	17.2(1.2)	17.9(1.1)	19.2(1.3)	20.7(3.2)	19.3(2.0)
WEST	13.0(1.4)	12.7(1.2)	16.4(1.5)	15.9(1.0)	14.5(1.1)	18.1(2.1)
TYPE OF COMMUNITY						
EXTREME RURAL	12.4(1.6)	12.0(1.6)	14.8(1.5)	11.3(1.5)	18.9(4.8)	19.6(3.7)
DISADVANTAGED URBAN	3.7(0.7)	3.7(0.8)	4.2(0.7)	8.1(0.9)	7.9(2.2)	6.7(2.0)
ADVANTAGED URBAN	30.3(1.3)	25.7(1.5)	31.1(2.3)	30.9(1.8)	22.0(3.0)	29.0(3.5)
OTHER	14.9(0.7)	14.4(0.7)	16.6(0.7)	16.5(0.6)	17.2(1.1)	18.3(1.1)
PARENTS' EDUCATION LEVEL						
NOT GRADUATED H.S.	6.1(0.8)	5.2(0.7)	6.7(1.0)	6.6(0.7)	6.3(2.1)	9.1(2.2)
GRADUATED H.S.	13.7(0.8)	14.0(0.9)	15.0(1.1)	14.3(0.9)	16.8(2.0)	17.2(1.4)
POST H.S.	26.1(1.1)	22.3(0.9)	25.9(1.1)	26.3(0.8)	22.8(1.6)	24.3(1.7)
DO NOT KNOW	9.6(0.5)	9.7(0.8)	11.0(0.8)	11.8(0.6)	12.3(1.3)	13.2(1.5)
TYPE OF SCHOOL						
PUBLIC	****(0.0)	*****(0.0)	16.7(0.9)	16.3(0.6)	16.6(0.9)	17.2(1.0)
PRIVATE	****(0.0)	*****(0.0)	25.6(1.7)	23.6(1.7)	23.6(3.5)	32.4(4.3)
QUARTILES						
UPPER	52.6(0.9)	50.5(1.6)	58.1(1.7)	61.0(1.0)	63.1(3.2)	66.0(1.9)
MIDDLE TWO	5.0(0.3)	3.9(0.3)	6.3(0.4)	3.6(0.3)	3.3(0.6)	3.8(0.5)
LOWER	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.2)	0.0(0.0)

From Mullis et al., 1991, p. 318.

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Table 8.4
NAEP 1990 Reading Trend Assessment--Age 9
Percentage of Students with Reading Proficiency
At or Above Anchor Level 300

	1971	1975	1980	1984	1988	1990
-- TOTAL --	0.9(0.1)	0.6(0.1)	0.6(0.1)	1.0(0.1)	1.4(0.3)	1.7(0.3)
SEX						
MALE	0.6(0.2)	0.3(0.1)	0.4(0.1)	0.8(0.2)	1.1(0.4)	1.4(0.3)
FEMALE	1.3(0.2)	0.9(0.2)	0.8(0.1)	1.1(0.1)	1.6(0.4)	2.0(0.5)
RACE/ETHNICITY						
WHITE	1.1(0.2)	0.7(0.1)	0.8(0.1)	1.2(0.2)	1.6(0.3)	2.2(0.4)
BLACK	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.1(0.1)	0.2(0.2)	0.3(0.2)
HISPANIC	***(0.0)	0.0(0.0)	0.0(0.0)	0.1(0.0)	0.4(0.0)	0.2(0.3)
OTHER	0.5(0.5)	0.9(0.9)	0.5(0.0)	1.9(0.6)	4.0(2.7)	0.7(0.8)
REGION						
NORTHEAST	1.1(0.3)	0.9(0.3)	0.8(0.2)	1.4(0.3)	1.7(0.4)	2.7(0.7)
SOUTHEAST	0.4(0.2)	0.3(0.2)	0.6(0.3)	0.6(0.2)	0.8(0.4)	1.0(0.5)
CENTRAL	1.3(0.3)	0.7(0.2)	0.6(0.2)	1.1(0.2)	1.9(1.1)	1.6(0.5)
WEST	0.7(0.2)	0.4(0.2)	0.5(0.2)	0.8(0.2)	1.1(0.4)	1.6(0.4)
TYPE OF COMMUNITY						
EXTREME RURAL	0.8(0.2)	0.4(0.2)	0.4(0.2)	0.5(0.3)	1.6(1.2)	1.5(0.8)
DISADVANTAGED URBAN	0.1(0.1)	0.1(0.0)	0.1(0.1)	0.3(0.2)	0.4(0.0)	0.7(0.5)
ADVANTAGED URBAN	2.7(0.7)	1.5(0.4)	1.7(0.4)	2.6(0.6)	2.0(0.9)	3.8(0.8)
OTHER	0.7(0.1)	0.5(0.1)	0.5(0.1)	0.8(0.1)	1.3(0.3)	1.5(0.4)
PARENTS' EDUCATION LEVEL						
NOT GRADUATED H.S.	0.2(0.1)	0.1(0.1)	0.1(0.1)	0.2(0.6)	0.0(0.0)	0.5(0.7)
GRADUATED H.S.	0.6(0.2)	0.5(0.2)	0.4(0.1)	0.6(0.2)	0.9(0.8)	1.3(0.7)
POST H.S.	2.0(0.3)	1.2(0.2)	1.1(0.2)	2.0(0.3)	2.2(0.7)	2.7(0.6)
DO NOT KNOW	0.4(0.1)	0.2(0.1)	0.3(0.1)	0.4(0.1)	0.6(0.3)	0.8(0.4)
TYPE OF SCHOOL						
PUBLIC	***(0.0)	***(0.0)	0.6(0.1)	0.9(0.1)	1.2(0.3)	1.6(0.3)
PRIVATE	***(0.0)	***(0.0)	1.1(0.5)	1.4(0.4)	2.4(1.1)	2.6(1.1)
QUARTILES						
UPPER	3.7(0.5)	2.4(0.3)	2.5(0.4)	3.9(0.5)	5.4(1.3)	6.7(1.2)
MIDDLE TWO	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
LOWER	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)

From Mullis et al., 1991, p. 319.

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Table 8.5
NAEP Reading Trend Assessment--Age 9
Percentage of Students with Reading Proficiency
At or Above Anchor Level 350

	1971	1975	1980	1984	1988	1990
-- TOTAL --	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.1)
SEX						
MALE	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
FEMALE	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.1)	0.1(0.1)
RACE/ETHNICITY						
WHITE	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.1)
BLACK	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
HISPANIC	****(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
OTHER	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.1(0.0)	0.0(0.0)	0.0(0.0)
REGION						
NORTHEAST	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.1)
SOUTHEAST	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.1)	0.0(0.1)
CENTRAL	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
WEST	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.1)
TYPE OF COMMUNITY						
EXTREME RURAL	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.1(0.0)	0.0(0.0)
DISADVANTAGED URBAN	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
ADVANTAGED URBAN	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.1(0.2)	0.0(0.2)
OTHER	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.1)
PARENTS' EDUCATION LEVEL						
NOT GRADUATED H.S.	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
GRADUATED H.S.	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.1(0.0)	0.0(0.0)
POST H.S.	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.1)	0.1(0.1)
DO NOT KNOW	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.1)
TYPE OF SCHOOL						
PUBLIC	****(0.0)	*****(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.1)
PRIVATE	****(0.0)	*****(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
QUARTILES						
UPPER	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.1(0.1)	0.1(0.2)
MIDDLE TWO	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
LOWER	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)

From Mullis et al., 1991, p. 320.

Table 9
NAEP 1990 National Writing Trend Assessment--Grade 4
Average Writing Achievement Across Assessment Years

	1984	1988	1990
-- TOTAL --	179.4(2.2)	185.5(1.8)	183.3(1.5)
SEX			
MALE	175.6(3.0)	175.9(2.8)	173.6(1.6)
FEMALE	183.6(2.6)	194.9(1.8)	192.5(2.2)
RACE/ETHNICITY			
WHITE	186.4(2.6)	193.2(2.1)	190.9(1.6)
BLACK	154.3(4.3)	154.3(3.6)	155.0(4.8)
HISPANIC	162.6(3.5)	169.1(4.4)	167.8(3.4)
OTHER	183.4(6.4)	189.1(9.2)	188.7(4.7)
REGION			
NORTHEAST	186.0(5.3)	187.3(5.2)	191.4(3.2)
SOUTHEAST	179.4(4.0)	180.7(3.5)	175.5(4.7)
CENTRAL	175.8(3.8)	189.9(2.3)	184.5(2.4)
WEST	177.3(3.3)	184.7(3.7)	182.6(3.0)
TYPE OF COMMUNITY			
EXTREME RURAL	154.0(10.9)	185.2(4.8)	186.2(4.8)
DISADVANTAGED URBAN	167.0(4.1)	158.0(4.8)	158.6(6.8)
ADVANTAGED URBAN	197.1(3.8)	199.2(6.1)	195.3(4.8)
OTHER	180.1(2.8)	186.1(2.4)	184.4(1.9)
PARENTS' EDUCATION LEVEL			
NOT GRADUATED H.S.	156.9(6.0)	157.8(8.4)	160.1(4.9)
GRADUATED H.S.	171.2(4.6)	183.3(3.2)	183.0(2.8)
POST H.S.	186.5(5.5)	178.6(6.6)	194.5(5.9)
GRADUATED COLLEGE	192.6(2.2)	194.9(2.2)	191.3(1.5)
DO NOT KNOW	175.9(3.3)	178.7(3.2)	174.4(2.2)
TYPE OF SCHOOL			
PUBLIC	177.5(2.4)	184.3(1.7)	181.9(1.7)
PRIVATE	190.7(4.7)	193.6(6.3)	198.6(3.8)

From Mullis et al., 1991, p. 357.

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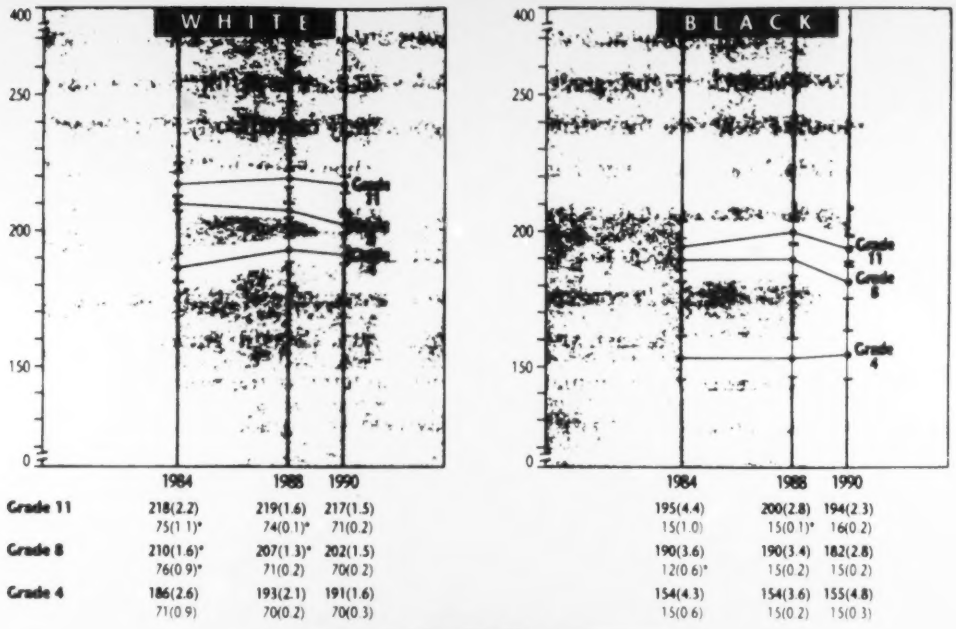
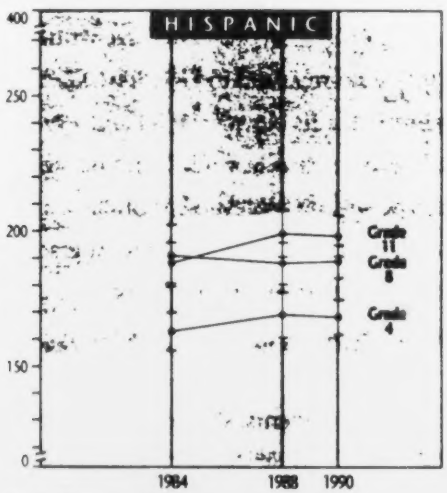
Figure 10
Trends in Average Writing Achievement by Race/Ethnicity, 1984 to 1990



	WHITE			BLACK		
	1984	1988	1990	1984	1988	1990
Grade 11	**218(2.2)**	**219(1.6)**	**217(1.5)**	**195(4.4)**	**200(2.8)**	**194(2.3)**
	75(1.1)*	74(0.1)*	71(0.2)	15(1.0)	15(0.1)*	16(0.2)
Grade 8	**210(1.6)***	**207(1.3)***	**202(1.5)**	**190(3.6)**	**190(3.4)**	**182(2.8)**
	76(0.9)*	71(0.2)	70(0.2)	12(0.6)*	15(0.2)	15(0.2)
Grade 4	**186(2.6)**	**193(2.1)**	**191(1.6)**	**154(4.3)**	**154(3.6)**	**155(4.8)**
	71(0.9)	70(0.2)	70(0.3)	15(0.6)	15(0.2)	15(0.3)



	HISPANIC		
	1984	1988	1990
Grade 11	**188(3.9)**	**199(4.2)**	**198(3.9)**
	8(0.6)	8(0.1)*	9(0.1)
Grade 8	**191(5.7)**	**188(3.8)**	**189(3.0)**
	8(0.7)*	10(0.1)	10(0.2)
Grade 4	**163(3.5)**	**169(4.4)**	**168(3.4)**
	11(0.7)	11(0.1)	11(0.2)

Note: Averages are in **bold face** type. For each age, the second row of data lists the percentages of students in the total population from each subgroup.

± 95 percent confidence interval.

* Statistically significant difference from 1990, as determined by an application of the Bonferroni procedure, where alpha equals .05 per set of 2 comparisons (each year compared to 1990). The standard errors of the estimated averages and percentages appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. Percentages do not total 100 percent because Asian/Pacific Islander and American Indian student data were analyzed separately. For Asian/Pacific Islander students and American Indian students, the sample sizes were insufficient to permit robust trend estimates.

From Mullis et al., 1991, p. 152.

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Table 10
NAEP 1990 Mathematics Trend Assessment--Age 9
Average Mathematics Proficiency Across Assessment Years

NAEP 1990 MATHEMATICS TREND ASSESSMENT—AGE 9
Average Mathematics Proficiency Across Assessment Years

	1977-78	1981-82	1985-86	1989-90	DIFFERENCE 1978-90	DIFFERENCE 1982-90	DIFFERENCE 1986-90
-- TOTAL --	218.6(0.8)	219.0(1.1)	221.7(1.0)	229.6(0.8)	11.0(1.2)	10.7(1.4)	7.9(1.3)
SEX							
MALE	217.4(0.7)	217.1(1.2)	221.7(1.1)	229.1(0.9)	11.7(1.2)	12.0(1.5)	7.4(1.4)
FEMALE	219.9(1.0)	220.8(1.2)	221.7(1.2)	230.2(1.1)	10.2(1.5)	9.4(1.6)	8.4(1.6)
RACE/ETHNICITY							
WHITE	224.1(0.9)	224.0(1.1)	226.9(1.1)	235.2(0.8)	11.1(1.2)	11.2(1.4)	8.3(1.4)
BLACK	192.4(1.1)	194.9(1.6)	201.6(1.6)	208.4(2.2)	15.9(2.5)	13.4(2.8)	6.8(2.8)
HISPANIC	202.9(2.2)	204.0(1.3)	205.4(2.1)	213.8(2.1)	10.8(3.1)	9.7(2.5)	8.3(2.9)
OTHER	227.2(3.4)	238.5(3.4)	221.8(7.5)	235.2(3.2)	8.0(4.7)	-3.3(4.7)	13.4(8.2)
REGION							
NORTHEAST	226.9(1.9)	225.7(1.8)	226.0(2.7)	235.8(2.1)	8.9(2.8)	10.2(2.7)	9.9(3.4)
SOUTHEAST	208.9(1.2)	210.4(2.5)	217.8(2.5)	223.9(2.4)	15.1(2.7)	13.6(3.5)	6.1(3.5)
CENTRAL	224.0(1.5)	221.1(2.7)	226.0(2.3)	230.7(1.3)	6.7(2.0)	9.6(3.0)	4.7(2.6)
WEST	213.5(1.3)	219.3(1.8)	217.2(2.4)	228.5(1.8)	15.0(2.2)	9.2(2.5)	11.3(3.0)
TYPE OF COMMUNITY							
EXTREME RURAL	212.3(2.9)	210.9(2.6)	218.8(7.0)	230.5(3.2)	18.2(4.3)	19.5(4.1)	11.6(7.7)
DISADVANTAGED URBAN	198.7(2.9)	198.8(2.2)	204.2(1.9)	214.4(4.6)	15.7(5.5)	15.6(5.2)	10.2(5.0)
ADVANTAGED URBAN	237.3(1.8)	238.9(2.2)	238.5(2.7)	244.1(1.8)	6.7(2.6)	5.2(2.9)	5.6(3.3)
OTHER	218.4(0.7)	219.3(0.9)	219.4(1.3)	229.0(0.9)	10.7(1.2)	9.7(1.3)	9.6(1.6)
PARENTS' EDUCATION LEVEL							
LESS THAN H.S.	200.3(1.5)	199.0(1.7)	200.6(2.5)	210.4(2.3)	10.0(2.8)	11.4(2.9)	9.7(3.4)
GRADUATED H.S.	219.2(1.1)	218.3(1.1)	218.4(1.6)	226.2(1.2)	7.0(1.6)	7.8(1.6)	7.8(2.0)
SOME EDUC AFTER H.S.	230.1(1.7)	225.2(2.1)	228.6(2.1)	235.8(2.0)	5.8(2.7)	10.7(3.0)	7.3(2.9)
GRADUATED COLLEGE	231.3(1.1)	228.8(1.5)	231.3(1.1)	237.6(1.3)	6.2(1.7)	8.8(2.0)	6.2(1.7)
UNKNOWN	211.4(1.1)	212.6(1.5)	214.3(1.4)	223.0(1.0)	11.6(1.5)	10.4(1.8)	8.7(1.7)
TYPE OF SCHOOL							
PUBLIC	217.2(0.8)	217.0(1.1)	220.1(1.2)	228.6(0.9)	11.4(1.2)	11.6(1.4)	8.5(1.5)
PRIVATE	230.5(1.7)	231.8(2.1)	230.0(2.5)	238.1(2.3)	7.6(2.9)	6.3(3.1)	8.1(3.4)
QUARTILES							
UPPER	256.0(0.8)	256.0(0.6)	259.3(0.7)	265.6(0.8)	9.6(1.1)	9.6(1.0)	6.3(1.1)
MIDDLE TWO	220.5(0.5)	220.7(0.5)	223.3(0.5)	231.3(0.4)	10.8(0.6)	10.6(0.6)	8.0(0.7)
LOWER	177.6(0.6)	178.5(0.8)	180.9(0.7)	190.3(1.0)	12.7(1.2)	11.8(1.3)	9.4(1.3)

NOTE: Some mathematics trend data for 1973 extrapolated from previous analyses can be found in Chapter Four.

From Mullis et al., 1991, p. 267.

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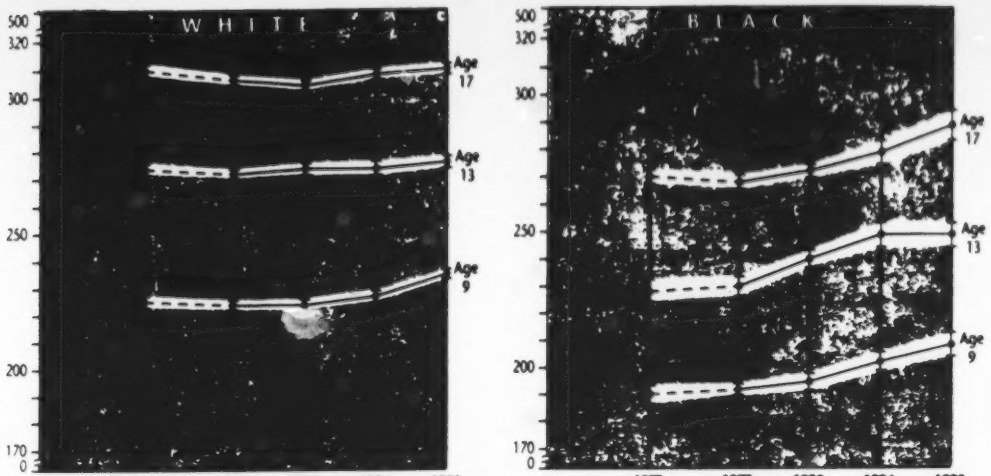
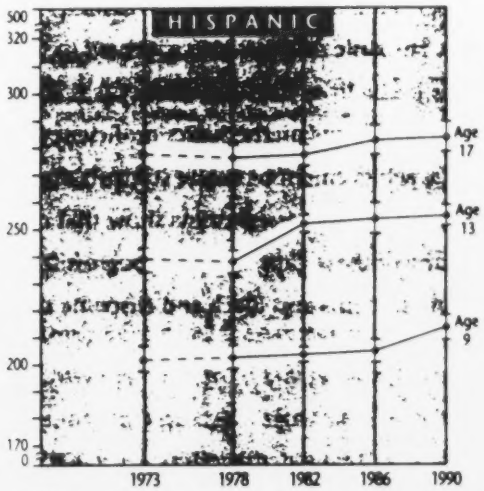
Figure 11
Trends in Average Mathematics Proficiency by Race/Ethnicity, 1973 to 1990



	1973	1978	1982	1986	1990
Age 17	310(1.1)	306(0.9)†	304(0.9)*†	308(1.0)	310(1.0)
	—	83(1.3)*	81(2.0)*	78(0.5)*†	73(0.5)†
Age 13	274(0.9)	272(0.8)*	274(1.0)	274(1.3)	276(1.1)
	—	80(1.7)*	79(2.1)*	77(1.0)	73(0.7)†
Age 9	225(1.0)*	224(0.9)*	224(1.1)*	227(1.1)*	235(0.8)†
	—	79(1.4)	79(2.5)	77(1.1)	75(1.1)

	1973	1978	1982	1986	1990
	270(1.3)*	268(1.3)*	272(1.2)*	279(2.1)*†	289(2.8)†
	—	12(1.1)*	13(1.7)	14(0.3)*	16(0.3)†
	228(1.9)*	230(1.9)*	240(1.6)*†	249(2.3)†	249(2.3)†
	—	13(1.5)	14(1.8)	14(0.9)	16(0.3)
	190(1.8)*	192(1.1)*	195(1.6)*	202(1.6)†	208(2.2)†
	—	14(1.4)	14(2.0)	15(0.5)	16(0.7)



	1973	1978	1982	1986	1990
Age 17	277(2.2)	276(2.3)	277(1.8)	283(2.9)	284(2.9)
	—	4(0.5)	5(1.0)	6(0.3)	7(0.4)
Age 13	239(2.2)*	238(2.0)*	252(1.7)†	254(2.9)†	255(1.8)†
	—	6(0.9)	5(1.2)	7(1.1)	7(0.5)
Age 9	202(2.4)*	203(2.2)*	204(1.3)*	205(2.1)	214(2.1)†
	—	5(0.7)	5(1.1)	6(1.1)	6(0.6)

Note: Average proficiencies are in **bold face** type. For each age, the second row of data lists the percentages of students in the total population from each subgroup. Unavailable data are shown by dashes (—).

± 95 percent confidence interval. [- - -] Extrapolated from previous NAEP analyses.

* Statistically significant difference from 1990 and † statistically significant difference from 1973 (for proficiencies) or 1978 (for percentages), as determined by an application of the Bonferroni procedure, where alpha equals .05 per set of comparisons. (No significance test is reported when the percentage of students is either > 95.0 or < 5.0.) The standard errors of the estimated proficiencies and percentages appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. Percentages do not total 100 percent because Asian/Pacific Islander and American Indian student data were analyzed separately. For Asian/Pacific Islander students and American Indian students, the sample sizes were insufficient to permit robust trend estimates.

From Mullis et al., 1991, p. 64.

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Figure 12

Levels of Mathematics Proficiency

Students at this level can apply a range of reasoning skills to solve multi-step problems. They can solve routine problems involving fractions and percents, recognize properties of basic geometric figures, and work with exponents and square roots. They can solve a variety of two-step problems using variables, identify equivalent algebraic expressions, and solve linear equations and inequalities. They are developing an understanding of functions and coordinate systems.

LEVEL 300 MODERATELY COMPLEX PROCEDURES AND REASONING

Students at this level are developing an understanding of number systems. They can compute with decimals, simple fractions, and commonly encountered percents. They can identify geometric figures, measure lengths and angles, and calculate areas of rectangles. These students are also able to interpret simple inequalities, evaluate formulas, and solve simple linear equations. They can find averages, make decisions on information drawn from graphs, and use logical reasoning to solve problems. They are developing the skills to operate with signed numbers, exponents, and square roots.

LEVEL 250 NUMERICAL OPERATIONS AND BEGINNING PROBLEM SOLVING

Students at this level have an initial understanding of the four basic operations. They are able to apply whole number addition and subtraction skills to one-step word problems and money situations. In multiplication, they can find the product of a two-digit and a one-digit number. They can also compare information from graphs and charts, and are developing an ability to analyze simple logical relations.

LEVEL 200 BEGINNING SKILLS AND UNDERSTANDINGS

Students at this level have considerable understanding of two-digit numbers. They can add two-digit numbers, but are still developing an ability to regroup in subtraction. They know some basic multiplication and division facts, recognize relations among coins, can read information from charts and graphs, and use simple measurement instruments. They are developing some reasoning skills.

LEVEL 150 SIMPLE ARITHMETIC FACTS

Students at this level know some basic addition and subtraction facts, and most can add two-digit numbers without regrouping. They recognize simple situations in which addition and subtraction apply. They also are developing rudimentary classification skills.

From Mullis et al., 1991, p. 76.

Table 10.1
Percentage of Students with Mathematics Proficiency At or Above Anchor Level 150

	1977-78	1981-82	1985-86	1989-90	DIFFERENCE 1978-90	DIFFERENCE 1982-90	DIFFERENCE 1986-90
-- TOTAL --	96.7(0.3)	97.1(0.3)	97.9(0.3)	99.1(0.2)	2.4(0.3)	2.0(0.4)	1.2(0.4)
SEX							
MALE	96.2(0.5)	96.5(0.5)	98.0(0.5)	99.0(0.3)	2.9(0.5)	2.5(0.6)	1.0(0.6)
FEMALE	97.2(0.3)	97.6(0.3)	97.8(0.4)	99.1(0.3)	1.9(0.4)	1.5(0.4)	1.4(0.5)
RACE/ETHNICITY							
WHITE	98.3(0.2)	98.5(0.3)	98.8(0.2)	99.6(0.2)	1.3(0.2)	1.1(0.3)	0.8(0.3)
BLACK	88.4(1.0)	90.2(1.0)	93.9(1.4)	96.9(0.9)	8.4(1.3)	6.7(1.3)	3.0(1.6)
HISPANIC	93.0(1.2)	94.3(1.2)	96.4(1.3)	98.0(0.8)	4.9(1.4)	3.6(1.4)	1.6(1.5)
OTHER	98.1(1.6)	99.2(0.5)	97.4(2.2)	99.2(0.8)	1.2(1.8)	0.0(1.0)	1.9(2.3)
REGION							
NORTHEAST	97.9(0.4)	98.3(0.4)	98.4(0.5)	99.3(0.3)	1.5(0.5)	1.0(0.5)	1.0(0.6)
SOUTHEAST	94.0(0.6)	94.6(0.8)	97.1(0.7)	98.2(0.7)	4.2(0.9)	3.6(1.1)	1.1(1.0)
CENTRAL	98.2(0.3)	97.9(0.5)	98.5(0.5)	99.4(0.3)	1.2(0.4)	1.5(0.6)	0.9(0.6)
WEST	96.2(0.6)	97.5(0.6)	97.5(0.9)	99.3(0.3)	3.1(0.6)	1.8(0.6)	1.8(0.9)
TYPE OF COMMUNITY							
EXTREME RURAL	94.5(1.6)	95.3(1.3)	96.7(2.0)	99.3(0.5)	4.8(1.6)	4.0(1.4)	2.6(2.1)
DISADVANTAGED URBAN	91.4(1.4)	91.8(1.5)	94.3(1.4)	97.4(1.5)	6.0(2.1)	5.6(2.1)	3.1(2.1)
ADVANTAGED URBAN	99.5(0.4)	99.6(0.4)	99.6(0.3)	99.9(0.2)	0.4(0.4)	0.3(0.4)	0.3(0.3)
OTHER	97.0(0.3)	97.5(0.4)	97.8(0.4)	99.1(0.2)	2.1(0.4)	1.6(0.4)	1.3(0.4)
PARENTS' EDUCATION LEVEL							
LESS THAN H.S.	92.2(1.1)	90.9(1.6)	93.9(1.8)	97.9(1.2)	5.6(1.6)	7.0(2.0)	3.9(2.1)
GRADUATED H.S.	97.1(0.4)	97.6(0.4)	97.4(0.5)	98.7(0.4)	1.6(0.6)	1.1(0.6)	1.2(0.6)
SOME EDUC AFTER H.S.	98.5(0.6)	98.2(0.6)	98.9(1.0)	99.1(0.6)	0.7(0.8)	0.9(0.8)	0.3(1.2)
GRADUATED COLLEGE	98.8(0.3)	98.6(0.3)	99.0(0.3)	99.5(0.3)	0.7(0.4)	0.8(0.4)	0.5(0.4)
UNKNOWN	95.6(0.5)	96.3(0.5)	97.4(0.6)	99.0(0.3)	3.4(0.6)	2.6(0.6)	1.6(0.7)
TYPE OF SCHOOL							
PUBLIC	96.4(0.3)	96.8(0.4)	97.7(0.3)	99.0(0.2)	2.6(0.4)	2.2(0.4)	1.3(0.4)
PRIVATE	99.0(1.0)	99.0(0.4)	98.7(0.8)	99.7(0.3)	0.7(1.0)	0.6(0.5)	1.0(0.8)
QUARTILES							
UPPER	100.0(0.0)	100.0(0.0)	100.0(0.0)	100.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
MIDDLE TWO	99.9(0.1)	100.0(0.0)	100.0(0.0)	100.0(0.0)	0.1(0.1)	0.0(0.0)	0.0(0.0)
LOWER	86.9(0.9)	88.4(1.2)	91.6(1.1)	96.3(0.8)	9.4(1.2)	7.8(1.4)	4.6(1.4)

From Mullis et al., 1991, p. 270.

Table 10.2
NAEP 1990 Mathematics Trend Assessment--Age 9
Percentage of Students with Mathematics Proficiency
At or Above Anchor Level 200

	1977-78	1981-82	1985-86	1989-90	DIFFERENCE 1978-90	DIFFERENCE 1982-90	DIFFERENCE 1986-90
-- TOTAL --	70.4(0.9)	71.4(1.2)	74.1(1.2)	81.5(1.0)	11.0(1.3)	10.0(1.5)	7.3(1.6)
SEX							
MALE	68.9(1.0)	68.8(1.3)	74.0(1.4)	80.6(1.0)	11.7(1.4)	11.8(1.7)	6.6(1.8)
FEMALE	72.0(1.1)	74.0(1.3)	74.3(1.3)	82.3(1.3)	10.4(1.6)	8.3(1.8)	8.1(1.8)
RACE/ETHNICITY							
WHITE	76.3(1.0)	76.8(1.2)	79.6(1.3)	86.9(0.9)	10.6(1.3)	10.0(1.5)	7.3(1.6)
BLACK	42.0(1.4)	46.1(2.4)	53.4(2.5)	60.0(2.8)	17.9(3.1)	13.9(3.6)	6.6(3.7)
HISPANIC	54.2(2.8)	55.7(2.3)	57.6(2.9)	68.4(3.0)	14.2(4.1)	12.7(3.8)	10.9(4.2)
OTHER	80.3(3.6)	85.2(3.4)	70.4(8.0)	87.0(5.4)	6.6(6.5)	1.8(6.4)	16.5(9.7)
REGION							
NORTHEAST	78.7(2.3)	78.0(2.1)	77.9(3.2)	85.9(2.2)	7.2(3.2)	7.9(3.1)	8.0(3.9)
SOUTHEAST	60.3(1.8)	62.5(2.3)	70.6(2.7)	75.1(2.8)	14.8(3.3)	12.5(3.7)	4.5(3.9)
CENTRAL	75.9(1.7)	73.8(2.7)	77.6(2.5)	83.7(1.3)	7.8(2.1)	9.9(3.0)	6.1(2.8)
WEST	65.6(1.7)	71.9(2.2)	70.5(2.9)	81.4(1.8)	15.8(2.5)	9.5(2.9)	10.9(3.4)
TYPE OF COMMUNITY							
EXTREME RURAL	63.4(3.7)	63.7(3.0)	73.3(7.4)	82.5(3.4)	19.1(5.0)	18.8(4.5)	9.2(8.1)
DISADVANTAGED URBAN	49.0(3.4)	49.7(2.5)	55.6(2.9)	67.4(6.3)	18.4(7.1)	17.6(6.8)	11.8(6.9)
ADVANTAGED URBAN	87.7(1.6)	89.1(2.0)	89.2(2.0)	92.6(1.0)	5.0(1.9)	3.5(2.2)	3.4(2.2)
OTHER	70.6(0.9)	72.2(1.1)	72.2(1.6)	81.2(1.1)	10.6(1.4)	9.1(1.5)	9.0(2.0)
PARENTS' EDUCATION LEVEL							
LESS THAN H.S.	51.8(2.7)	51.0(2.6)	50.1(3.9)	63.4(4.7)	11.5(5.4)	12.4(5.3)	13.3(6.1)
GRADUATED H.S.	71.7(1.4)	72.1(1.4)	72.2(2.1)	79.3(1.6)	7.6(2.1)	7.3(2.1)	7.1(2.7)
SOME EDUC AFTER H.S.	80.7(2.0)	77.9(2.5)	80.7(2.7)	85.7(2.3)	4.9(3.0)	7.7(3.4)	4.9(3.5)
GRADUATED COLLEGE	82.1(1.3)	80.3(1.5)	82.6(1.2)	87.2(1.3)	5.1(1.8)	6.9(2.0)	4.6(1.8)
UNKNOWN	63.6(1.3)	64.9(2.2)	67.7(1.6)	77.1(1.4)	13.5(1.9)	12.2(2.6)	9.5(2.2)
TYPE OF SCHOOL							
PUBLIC	68.8(0.9)	69.4(1.2)	72.7(1.4)	80.5(1.1)	11.7(1.4)	11.1(1.6)	7.8(1.8)
PRIVATE	83.3(1.9)	84.3(2.1)	81.8(2.3)	89.3(1.8)	6.0(2.6)	5.0(2.8)	7.5(2.9)
QUARTILES							
UPPER	99.6(0.1)	99.7(0.2)	99.9(0.2)	100.0(0.2)	0.4(0.2)	0.3(0.3)	0.1(0.3)
MIDDLE TWO	82.2(0.6)	84.3(0.7)	89.5(0.9)	95.8(0.5)	13.6(0.7)	11.5(0.9)	6.3(1.0)
LOWER	17.7(0.9)	17.5(1.6)	17.6(1.5)	34.3(2.2)	16.6(2.4)	16.7(2.7)	16.7(2.6)

From Mullis et al., 1991, p. 271.

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Table 10.3
NAEP 1990 Mathematics Trend Assessment--Age 9
Percentage of Students with Mathematics Proficiency
At or Above Level 250

	1977-78	1981-82	1985-86	1989-90	DIFFERENCE 1978-90	DIFFERENCE 1982-90	DIFFERENCE 1986-90
-- TOTAL --	19.6(0.7)	18.8(1.0)	20.7(0.9)	27.7(0.9)	8.1(1.1)	8.9(1.3)	7.0(1.2)
SEX							
MALE	19.2(0.6)	18.1(1.1)	20.9(1.1)	27.5(1.0)	8.3(1.2)	9.4(1.4)	6.7(1.5)
FEMALE	19.9(1.0)	19.6(1.1)	20.6(1.3)	27.9(1.3)	8.0(1.7)	8.4(1.7)	7.4(1.8)
RACE/ETHNICITY							
WHITE	22.9(0.9)	21.8(1.1)	24.8(1.0)	32.7(1.0)	9.9(1.4)	10.9(1.5)	8.1(1.5)
BLACK	4.1(0.6)	4.4(0.8)	5.6(0.9)	9.4(1.7)	5.3(1.8)	5.1(1.9)	3.8(1.9)
HISPANIC	9.2(2.5)	7.8(1.7)	7.3(2.8)	11.3(3.5)	2.0(4.3)	3.5(3.9)	4.0(4.5)
OTHER	25.1(3.6)	38.3(4.7)	25.1(6.4)	31.7(3.6)	6.6(5.1)	-6.6(5.9)	6.6(7.3)
REGION							
NORTHEAST	25.9(1.6)	23.8(1.4)	24.8(2.7)	34.4(2.1)	8.5(2.6)	10.6(2.5)	9.6(3.4)
SOUTHEAST	13.4(0.8)	13.6(1.7)	17.2(2.4)	24.0(2.0)	10.6(2.1)	10.4(2.6)	6.7(3.2)
CENTRAL	23.2(1.4)	19.9(2.5)	24.7(1.8)	27.5(1.8)	4.3(2.2)	7.6(3.1)	2.9(2.5)
WEST	14.9(1.1)	18.6(1.4)	16.3(2.2)	25.6(1.6)	10.7(1.9)	7.0(2.1)	9.3(2.7)
TYPE OF COMMUNITY							
EXTREME RURAL	16.3(1.6)	13.0(3.3)	18.4(6.2)	28.6(3.5)	12.2(3.9)	15.6(4.8)	10.1(7.1)
DISADVANTAGED URBAN	7.2(1.6)	6.0(1.4)	8.3(2.5)	14.2(3.6)	7.0(3.9)	8.2(3.8)	5.9(4.4)
ADVANTAGED URBAN	35.6(2.5)	36.6(2.7)	36.8(3.2)	42.4(3.0)	6.9(3.9)	5.8(4.1)	5.6(4.4)
OTHER	18.7(0.7)	18.4(0.8)	18.2(1.3)	26.9(1.0)	8.2(1.2)	8.4(1.3)	8.7(1.6)
PARENTS' EDUCATION LEVEL							
LESS THAN H.S.	7.5(1.2)	7.1(1.5)	6.4(2.3)	9.9(2.6)	2.4(2.9)	2.8(3.0)	3.5(3.5)
GRADUATED H.S.	18.8(1.1)	16.4(1.3)	17.4(2.1)	23.6(1.6)	4.8(2.0)	7.1(2.1)	6.2(2.7)
SOME EDUC AFTER H.S.	29.2(1.9)	23.7(2.9)	26.6(2.6)	35.0(4.2)	5.8(4.6)	11.4(5.1)	8.5(4.9)
GRADUATED COLLEGE	30.4(1.3)	27.2(1.3)	29.6(1.4)	36.6(1.7)	6.2(2.2)	9.4(2.1)	7.0(2.2)
UNKNOWN	13.4(1.1)	13.6(1.3)	13.3(1.1)	19.7(1.1)	6.3(1.6)	6.1(1.7)	6.3(1.6)
TYPE OF SCHOOL							
PUBLIC	18.5(0.7)	17.3(0.9)	19.1(1.1)	26.8(1.0)	8.3(1.2)	9.5(1.3)	7.7(1.5)
PRIVATE	28.4(2.0)	28.6(2.6)	28.9(2.7)	35.2(3.3)	6.8(3.8)	6.6(4.2)	6.3(4.3)
QUARTILES							
UPPER	59.7(1.4)	60.0(1.6)	67.9(1.4)	79.8(1.3)	20.1(1.9)	19.8(2.1)	11.9(1.9)
MIDDLE TWO	9.3(0.6)	7.7(0.7)	7.5(0.7)	15.5(0.8)	6.2(1.0)	7.8(1.0)	8.1(1.0)
LOWER	0.1(0.1)	0.0(0.1)	0.0(0.1)	0.1(0.2)	0.0(0.2)	0.0(0.2)	0.0(0.2)

From Mullis et al., 1991, p. 272.

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Table 10.4
NAEP 1990 Mathematics Trend Assessment--Age 9
Percentage of Students with Mathematics Proficiency
At or Above Anchor Level 300

	1977-78	1981-82	1985-86	1989-90	DIFFERENCE 1978-90	DIFFERENCE 1982-90	DIFFERENCE 1986-90
-- TOTAL --	0.8(0.1)	0.6(0.1)	0.6(0.2)	1.2(0.3)	0.4(0.3)	0.6(0.3)	0.5(0.4)
SEX							
MALE	0.7(0.2)	0.6(0.1)	0.7(0.3)	1.3(0.4)	0.6(0.5)	0.7(0.5)	0.6(0.5)
FEMALE	0.8(0.2)	0.5(0.1)	0.6(0.3)	1.0(0.3)	0.2(0.4)	0.5(0.3)	0.5(0.4)
RACE/ETHNICITY							
WHITE	0.9(0.2)	0.6(0.1)	0.8(0.3)	1.5(0.4)	0.5(0.4)	0.8(0.4)	0.7(0.5)
BLACK	0.0(0.0)	0.0(0.0)	0.1(0.0)	0.1(0.1)	0.0(0.1)	0.0(0.1)	0.0(0.1)
HISPANIC	0.2(0.5)	0.0(0.5)	0.1(0.5)	0.2(0.5)	0.0(0.6)	0.2(0.6)	0.1(0.6)
OTHER	1.9(0.9)	3.7(2.1)	0.8(0.8)	2.0(1.0)	0.1(1.3)	-1.7(2.3)	1.2(1.3)
REGION							
NORTHEAST	1.3(0.5)	0.9(0.3)	1.0(0.4)	2.1(0.7)	0.8(0.9)	1.2(0.8)	1.1(0.9)
SOUTHEAST	0.3(0.2)	0.3(0.1)	0.3(0.2)	1.2(0.6)	0.8(0.6)	0.9(0.6)	0.8(0.6)
CENTRAL	1.1(0.3)	0.6(0.3)	1.0(0.7)	0.6(0.2)	-0.5(0.4)	0.1(0.3)	-0.4(0.7)
WEST	0.4(0.2)	0.6(0.1)	0.2(0.2)	0.9(0.4)	0.6(0.4)	0.3(0.4)	0.7(0.4)
TYPE OF COMMUNITY							
EXTREME RURAL	0.8(0.6)	0.3(0.2)	0.3(0.6)	0.9(0.8)	0.3(0.8)	0.6(0.6)	0.6(0.8)
DISADVANTAGED URBAN	0.1(0.2)	0.1(0.1)	0.0(0.1)	0.1(0.1)	0.0(0.2)	0.1(0.2)	0.1(0.2)
ADVANTAGED URBAN	2.1(0.7)	2.0(0.4)	1.9(1.2)	3.0(1.2)	0.9(1.4)	0.9(1.3)	1.1(1.7)
OTHER	0.7(0.1)	0.5(0.1)	0.4(0.1)	1.0(0.3)	0.4(0.3)	0.6(0.3)	0.6(0.3)
PARENTS' EDUCATION LEVEL							
LESS THAN H.S.	0.1(0.2)	0.0(0.2)	0.0(0.2)	0.0(0.2)	-0.1(0.3)	0.0(0.3)	0.0(0.3)
GRADUATED H.S.	0.6(0.2)	0.4(0.2)	0.4(0.4)	0.4(0.4)	-0.2(0.5)	0.0(0.4)	0.0(0.6)
SOME EDUC AFTER H.S.	1.6(0.6)	0.5(0.5)	1.2(0.9)	1.4(0.8)	-0.1(1.0)	0.9(1.0)	0.3(1.2)
GRADUATED COLLEGE	1.6(0.5)	1.0(0.3)	1.2(0.5)	2.1(0.5)	0.6(0.7)	1.1(0.6)	1.0(0.7)
UNKNOWN	0.3(0.1)	0.4(0.2)	0.2(0.1)	0.5(0.3)	0.2(0.3)	0.1(0.4)	0.3(0.3)
TYPE OF SCHOOL							
PUBLIC	0.7(0.2)	0.5(0.1)	0.6(0.2)	1.1(0.3)	0.4(0.3)	0.6(0.3)	0.5(0.4)
PRIVATE	1.2(0.4)	1.0(0.6)	1.1(0.6)	1.8(1.2)	0.6(1.2)	0.8(1.3)	0.7(1.3)
QUARTILES							
UPPER	3.0(0.5)	2.2(0.3)	2.6(0.8)	4.6(1.1)	1.6(1.3)	2.3(1.2)	2.0(1.4)
MIDDLE TWO	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.1(0.1)	0.0(0.1)	0.0(0.1)	0.0(0.1)
LOWER	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)

From Mullis et al., 1991, p. 273.

Table 10.5
NAEP 1990 Mathematics Trend Assessment--Age 9
Percentage of Students with Mathematics Proficiency
At or Above Anchor Level 350

	1977-78	1981-82	1985-86	1989-90	DIFFERENCE 1978-90	DIFFERENCE 1982-90	DIFFERENCE 1986-90
-- TOTAL --	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
SEX							
MALE	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
FEMALE	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
RACE/ETHNICITY							
WHITE	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
BLACK	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
HISPANIC	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
OTHER	0.0(0.0)	0.1(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	-0.1(0.0)	0.0(0.0)
REGION							
NORTHEAST	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
SOUTHEAST	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
CENTRAL	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
WEST	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
TYPE OF COMMUNITY							
EXTREME RURAL	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
DISADVANTAGED URBAN	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
ADVANTAGED URBAN	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
OTHER	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
PARENTS' EDUCATION LEVEL							
LESS THAN H S	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
GRADUATED H S	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
SOME EDUC AFTER H S	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
GRADUATED COLLEGE	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
UNKNOWN	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
TYPE OF SCHOOL							
PUBLIC	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
PRIVATE	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
QUARTILES							
UPPER	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
MIDDLE TWO	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
LOWER	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)

From Mullis et al., 1991, p. 274.

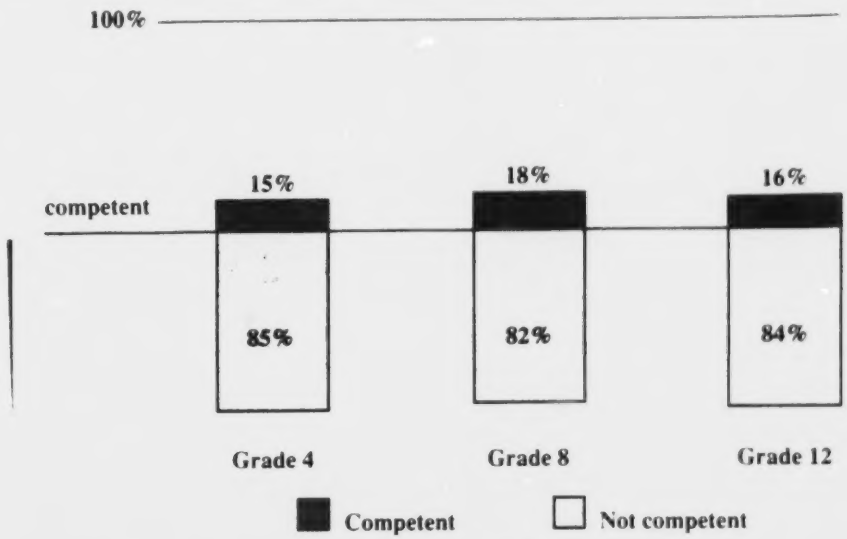
Table 11
Mathematics Achievement--Grade 4
Percent[1] of Students who Scored Within Various Achievement Levels,[2] 1990

	Below Basic	Basic	Competent Proficient	Competent Advanced
All students	37%	48%	14%	1%
American Indian/ Alaskan Native	44%	50%	5%	<1%
Asian/Pacific Islander	22%	49%	27%	2%
Black	70%	28%	2%	<1%
Hispanic	58%	36%	5%	<1%
White	26%	55%	18%	1%

[1] Percents may not add up to 100% because of rounding.
[2] Complete descriptions of each level can be found in Appendix B.

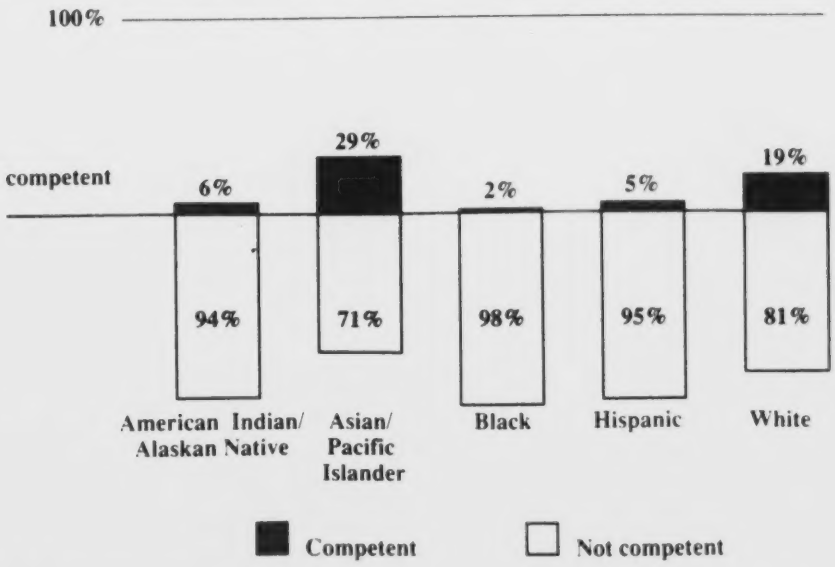
From National Education Goals Panel, 1991, p. 46.

Figures 13 and 14
Competency in Mathematics
Percentage of 4th, 8th, and 12th graders who are competent in mathematics, 1990



A complete description of "competency" can be found in Appendix B.

Competency in Mathematics--Grade 4
Percentage of 4th graders who are competent[1] in mathematics, 1990



A complete description of "competency" can be found in Appendix B.

From National Education Goals Panel, 1991, p. 12.

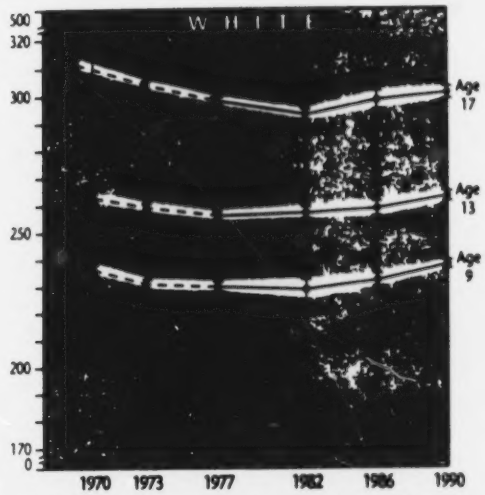
Table 12
NAEP Science Trend Assessment--Age 9
Average Science Proficiency Across Assessment Years

	1976-77	1981-82	1985-86	1989-90	DIFFERENCE 1977-90	DIFFERENCE 1982-90	DIFFERENCE 1986-90
-- TOTAL --	219.9(1.2)	220.8(1.8)	224.3(1.2)	228.7(0.8)	8.8(1.4)	7.8(1.9)	4.4(1.5)
SEX							
MALE	222.1(1.3)	221.0(2.3)	227.3(1.4)	230.3(1.1)	8.2(1.7)	9.3(2.5)	3.0(1.8)
FEMALE	217.6(1.2)	220.7(2.0)	221.3(1.4)	227.1(1.0)	9.5(1.6)	6.4(2.2)	5.7(1.8)
RACE/ETHNICITY							
WHITE	229.6(0.9)	229.0(1.9)	231.9(1.2)	237.5(0.8)	7.9(1.2)	8.4(2.1)	5.6(1.4)
BLACK	174.8(1.8)	187.0(3.0)	196.2(1.9)	196.4(2.0)	21.6(2.6)	9.4(3.6)	0.2(2.7)
HISPANIC	191.9(2.7)	189.0(4.2)	199.4(3.1)	206.2(2.2)	14.4(3.5)	17.3(4.7)	6.8(3.8)
OTHER	214.4(5.4)	222.8(5.3)	220.6(4.6)	227.4(3.6)	13.0(6.5)	4.6(6.4)	6.7(5.8)
REGION							
NORTHEAST	224.4(1.6)	221.8(2.9)	228.2(3.5)	231.1(2.4)	6.6(2.9)	9.3(3.7)	2.9(4.3)
SOUTHEAST	205.1(2.9)	213.9(3.6)	218.8(3.1)	219.9(1.9)	14.8(3.5)	6.0(4.0)	1.1(3.7)
CENTRAL	225.2(2.2)	226.3(3.5)	227.9(2.2)	234.2(1.7)	8.9(2.8)	7.9(3.9)	6.3(2.8)
WEST	220.9(2.2)	219.9(4.1)	222.1(3.2)	229.5(1.8)	8.6(2.9)	9.6(4.5)	7.3(3.7)
TYPE OF COMMUNITY							
EXTREME RURAL	224.5(3.2)	212.4(5.3)	224.0(4.4)	233.0(4.3)	8.5(5.4)	20.6(6.8)	9.0(6.2)
DISADVANTAGED URBAN	180.5(3.4)	192.2(5.7)	191.6(3.8)	208.5(5.9)	28.0(6.8)	16.3(8.2)	16.9(7.0)
ADVANTAGED URBAN	242.0(2.2)	243.2(4.3)	243.1(2.4)	241.2(1.6)	-0.8(2.7)	-2.0(4.5)	-1.9(2.8)
OTHER	220.2(1.4)	221.5(2.1)	222.7(1.7)	228.6(1.2)	8.4(1.8)	7.2(2.4)	6.0(2.1)
PARENTS' EDUCATION LEVEL							
LESS THAN H.S.	198.5(2.2)	198.2(6.0)	203.6(2.9)	209.8(2.7)	11.3(3.5)	11.6(6.8)	6.2(4.0)
GRADUATED H.S.	223.0(1.4)	218.0(3.3)	219.6(1.5)	225.8(1.7)	2.8(2.2)	7.7(3.7)	6.2(2.3)
SOME EDUC AFTER H.S.	237.2(1.5)	229.1(3.2)	235.8(2.6)	237.6(2.1)	0.4(2.6)	8.4(3.8)	1.8(3.4)
GRADUATED COLLEGE	232.3(1.4)	230.5(2.3)	235.2(1.4)	236.2(1.3)	3.9(1.9)	5.7(2.8)	1.1(1.9)
UNKNOWN	211.0(1.4)	210.8(2.8)	215.3(1.5)	221.5(1.2)	10.5(1.8)	10.7(3.0)	6.2(1.9)
TYPE OF SCHOOL							
PUBLIC	218.0(1.4)	219.7(2.0)	222.6(1.4)	227.7(0.9)	9.7(1.7)	8.0(2.2)	5.1(1.7)
PRIVATE	234.6(2.2)	231.5(3.2)	233.0(2.9)	236.8(2.4)	2.2(3.3)	5.3(4.0)	3.7(3.8)
QUARTILES							
UPPER	265.8(0.9)	268.3(1.8)	268.8(1.2)	271.0(0.8)	5.4(1.2)	2.7(2.0)	2.2(1.5)
MIDDLE TWO	222.1(0.5)	221.7(1.1)	225.8(0.8)	231.0(0.5)	8.9(0.7)	9.3(1.2)	5.2(0.8)
LOWER	169.6(1.1)	171.4(2.0)	176.7(1.0)	181.9(0.9)	12.3(1.5)	10.5(2.2)	5.2(1.4)

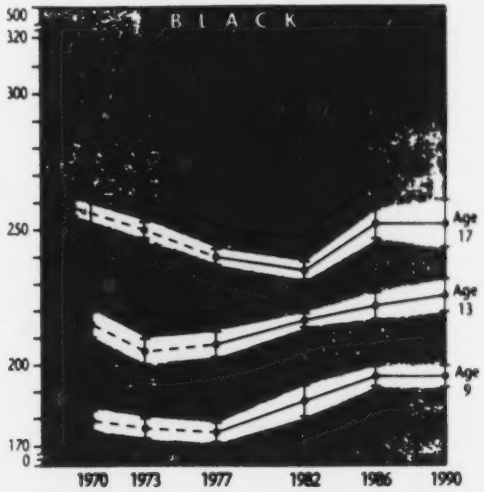
NOTE: Some science trend data for 1969-70 and 1973 extrapolated from previous analyses can be found in Chapter One

From Mullis et al., 1991, p. 225.

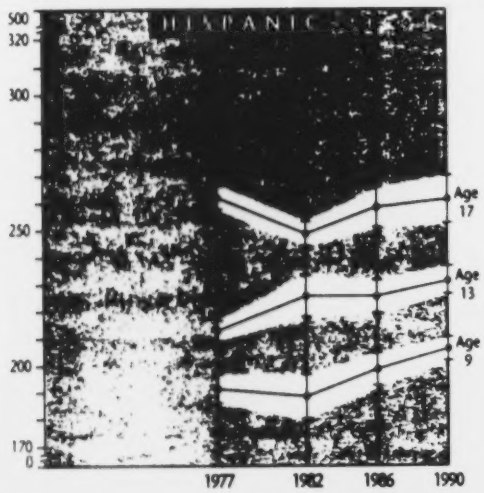
Figure 15
Trends in average Science Proficiency by Race/Ethnicity, 1969-70 to 1990



	1970	1973	1977	1982	1986	1990
Age 17	312(0.8)*	304(0.8)†	298(0.7)†	293(1.0)*†	298(1.7)†	301(1.1)†
	—	—	83(1.3)*	81(2.0)*	78(0.5)*†	73(0.5)†
Age 13	263(0.8)	259(0.8)*†	256(0.8)*†	257(1.1)*†	259(1.4)*	264(0.9)
	—	—	80(1.6)*	79(2.1)	77(1.0)	73(0.7)†
Age 9	236(0.9)	231(0.9)*†	230(0.9)*†	229(1.9)*†	232(1.2)*	238(0.8)
	—	—	80(1.6)	79(2.6)	77(1.1)	75(1.1)



	1970	1973	1977	1982	1986	1990
	258(1.5)	250(1.5)†	240(1.5)*†	235(1.7)*†	253(2.9)	253(4.5)
	—	—	12(1.1)*	13(1.4)	14(0.3)*	16(0.3)†
	215(2.4)	205(2.4)*	208(2.4)*	217(1.3)	222(2.5)	226(3.1)
	—	—	13(1.2)*	14(1.9)	14(0.9)	16(0.3)†
	179(1.9)*	177(1.9)*	175(1.8)*	187(3.0)	196(1.9)†	196(2.0)†
	—	—	14(1.4)	14(2.1)	15(0.5)	16(0.7)



	1977	1982	1986	1990
Age 17	262(2.2)	249(2.3)*†	259(3.8)	262(4.4)
	4(0.9)	5(1.1)	6(0.3)	7(0.4)
Age 13	213(1.9)*	226(3.9)†	226(3.1)†	232(2.6)†
	5(1.1)	5(1.0)	7(1.1)	7(0.5)
Age 9	192(2.7)*	189(4.2)*	199(3.1)	206(2.2)†
	5(0.9)	5(1.3)	6(1.1)	6(0.6)

Note: Average proficiencies are in **bold face** type. For each age, the second row of data lists the percentages of students in the total population from each subgroup. Unavailable data are shown by dashes (—).

± 95 percent confidence interval. [- - -] Extrapolated from previous NAEP analyses.

* Statistically significant difference from 1990 and † statistically significant difference from 1969-70 (for proficiencies for White and Black students) or 1977 (for proficiencies for Hispanic students and for all percentages), as determined by an application of the Bonferroni procedure, where alpha equals .05 per set of comparisons. (No significance test is reported when the percentage of students is either > 95.0 or < 5.0.) The standard errors of the estimated proficiencies and percentages appear in parentheses. It can be said with 95 percent certainty that for each population of interest, the value for the whole population is within plus or minus two standard errors of the estimate for the sample. Percentages do not total 100 percent because Asian/Pacific Islander and American Indian student data were analyzed separately. For Asian/Pacific Islander students and American Indian students, the sample sizes were insufficient to permit robust trend estimates.

From Mullis et al., 1991, p. 26.

Figure 16
Levels of Science Proficiency

LEVEL 350 INTEGRATES SPECIALIZED SCIENTIFIC INFORMATION

Students at this level can infer relationships and draw conclusions using detailed scientific knowledge from the physical sciences, particularly chemistry. They also can apply basic principles of genetics and interpret the societal implications of research in this field.

LEVEL 300 ANALYZES SCIENTIFIC PROCEDURES AND DATA

Students at this level can evaluate the appropriateness of the design of an experiment. They have more detailed scientific knowledge, and the skill to apply their knowledge in interpreting information from text and graphs. These students also exhibit a growing understanding of principles from the physical sciences.

LEVEL 250 APPLIES GENERAL SCIENTIFIC INFORMATION

Students at this level can interpret data from simple tables and make inferences about the outcomes of experimental procedures. They exhibit knowledge and understanding of the life sciences, including a familiarity with some aspects of animal behavior and of ecological relationships. These students also demonstrate some knowledge of basic information from the physical sciences.

LEVEL 200 UNDERSTANDS SIMPLE SCIENTIFIC PRINCIPLES

Students at this level are developing some understanding of simple scientific principles, particularly in the life sciences. For example, they exhibit some rudimentary knowledge of the structure and function of plants and animals.

LEVEL 150 KNOWS EVERYDAY SCIENCE FACTS

Students at this level know some general scientific facts of the type that could be learned from everyday experiences. They can read simple graphs, match the distinguishing characteristics of animals, and predict the operation of familiar apparatus that work according to mechanical principles.

Form Mullis et al., 1991, p. 38.

Table 12.1
NAEP Science Trend Assessment--Age 9
Percentage of Students with Science Proficiency
At or Above Anchor Level 150

	1976-77	1981-82	1985-86	1989-90	DIFFERENCE 1977-90	DIFFERENCE 1982-90	DIFFERENCE 1986-90
-- TOTAL --	93.5(0.6)	95.2(0.7)	96.2(0.3)	97.0(0.3)	3.4(0.7)	1.7(0.8)	0.8(0.5)
SEX							
MALE	94.3(0.5)	95.0(1.0)	96.8(0.5)	96.8(0.5)	2.5(0.7)	1.8(1.1)	0.0(0.7)
FEMALE	92.8(0.7)	95.5(1.2)	95.6(0.6)	97.1(0.4)	4.4(0.8)	1.6(1.2)	1.5(0.7)
RACE/ETHNICITY							
WHITE	97.7(0.3)	98.3(0.4)	98.2(0.3)	99.2(0.2)	1.5(0.4)	0.9(0.5)	1.0(0.4)
BLACK	72.4(1.8)	82.1(3.0)	88.6(1.4)	88.0(1.3)	15.6(2.2)	5.8(3.3)	-0.6(2.0)
HISPANIC	84.6(1.8)	85.1(3.1)	89.6(2.4)	93.6(1.5)	9.0(2.4)	8.6(3.5)	4.0(2.8)
OTHER	94.9(2.4)	95.7(3.2)	95.9(1.8)	96.3(2.6)	1.4(3.6)	0.6(4.1)	0.4(3.2)
REGION							
NORTHEAST	94.6(0.7)	94.5(1.4)	96.7(0.9)	97.1(0.6)	2.5(0.9)	2.6(1.5)	0.4(1.0)
SOUTHEAST	87.8(1.8)	92.7(1.6)	95.0(1.2)	94.6(0.9)	6.8(2.0)	1.9(1.8)	-0.4(1.5)
CENTRAL	95.5(0.8)	97.5(1.1)	97.1(0.6)	98.4(0.7)	2.9(1.0)	0.9(1.3)	1.3(0.9)
WEST	94.9(1.1)	95.4(1.3)	95.9(0.7)	97.7(0.7)	2.8(1.3)	2.3(1.5)	1.8(1.0)
TYPE OF COMMUNITY							
EXTREME RURAL	96.6(0.9)	94.3(2.6)	97.0(1.8)	97.6(1.8)	1.0(2.0)	3.3(3.1)	0.6(2.5)
DISADVANTAGED URBAN	74.9(2.4)	85.2(4.3)	86.3(2.0)	92.2(2.3)	17.3(3.3)	7.0(4.9)	6.0(3.1)
ADVANTAGED URBAN	98.9(0.4)	99.7(0.4)	99.3(0.4)	99.6(0.3)	0.7(0.5)	-0.2(0.5)	0.3(0.5)
OTHER	94.3(0.6)	95.6(0.7)	96.3(0.5)	97.0(0.4)	2.7(0.7)	1.4(0.8)	0.8(0.6)
PARENTS' EDUCATION LEVEL							
LESS THAN H.S.	86.0(1.7)	85.5(3.5)	90.1(3.4)	93.3(2.3)	7.2(2.8)	7.8(4.2)	3.2(4.1)
GRADUATED H.S.	95.0(0.5)	96.1(1.0)	95.6(0.6)	96.9(0.8)	1.9(1.0)	0.7(1.3)	1.3(1.0)
SOME EDUC AFTER H.S.	97.1(0.9)	96.6(1.8)	98.0(1.1)	97.6(1.2)	0.5(1.5)	1.0(2.1)	-0.3(1.6)
GRADUATED COLLEGE	96.8(0.6)	97.2(0.7)	98.0(0.4)	98.1(0.4)	1.3(0.7)	0.9(0.8)	0.0(0.5)
UNKNOWN	91.4(0.8)	93.8(1.9)	95.0(0.6)	96.0(0.6)	4.6(1.0)	2.2(2.0)	1.0(0.9)
TYPE OF SCHOOL							
PUBLIC	93.0(0.7)	94.9(0.8)	95.8(0.4)	96.7(0.4)	3.8(0.8)	1.9(0.9)	0.9(0.5)
PRIVATE	98.1(0.6)	98.9(1.4)	98.2(0.7)	98.7(0.9)	0.5(1.1)	-0.2(1.6)	0.5(1.1)
QUARTILES							
UPPER	100.0(0.0)	100.0(0.0)	100.0(0.0)	100.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
MIDDLE TWO	99.5(0.1)	100.0(0.1)	99.8(0.1)	100.0(0.0)	0.5(0.2)	0.0(0.1)	0.1(0.1)
LOWER	75.2(1.4)	81.0(2.5)	85.2(1.1)	87.9(1.2)	12.6(1.8)	6.9(2.7)	2.7(1.6)

From Mullis et al., 1991, p. 228.

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Table 12.2
NAEP 1990 Mathematics Trend Assessment--Age 9
Percentage of Students with Science Proficiency
At or Above Anchor Level 200

	1976-77	1981-82	1985-86	1989-90	DIFFERENCE 1977-90	DIFFERENCE 1982-90	DIFFERENCE 1986-90
-- TOTAL --	25.7(0.7)	24.3(1.8)	27.5(1.4)	31.1(0.8)	5.4(1.1)	6.8(2.0)	3.6(1.6)
SEX							
MALE	27.4(0.9)	25.6(2.6)	29.9(2.0)	33.1(1.1)	5.7(1.4)	7.5(2.8)	3.2(2.2)
FEMALE	24.0(0.9)	23.0(2.0)	25.1(1.4)	29.1(1.0)	5.1(1.4)	6.1(2.3)	4.0(1.7)
RACE/ETHNICITY							
WHITE	30.8(0.7)	29.4(2.1)	32.7(1.5)	37.5(1.1)	6.8(1.3)	8.2(2.4)	4.9(1.8)
BLACK	3.5(0.6)	3.9(1.3)	8.3(1.5)	8.5(1.1)	5.0(1.2)	4.6(1.7)	0.2(1.9)
HISPANIC	8.8(1.7)	4.2(2.7)	10.7(2.4)	11.6(2.1)	2.8(2.7)	7.4(3.4)	0.8(3.2)
OTHER	20.5(4.9)	23.4(11.1)	27.1(5.8)	30.1(6.0)	9.6(7.7)	6.7(12.6)	3.0(8.3)
REGION							
NORTHEAST	28.9(1.1)	25.8(3.1)	30.5(2.9)	33.4(2.9)	4.6(3.1)	7.7(4.2)	2.9(4.1)
SOUTHEAST	17.2(1.5)	20.2(3.6)	23.3(3.0)	24.9(1.4)	7.7(2.1)	4.6(3.8)	1.5(3.3)
CENTRAL	29.2(1.6)	27.5(3.6)	30.1(2.3)	34.4(1.8)	5.2(2.4)	6.8(4.0)	4.3(2.9)
WEST	25.3(1.2)	23.1(4.6)	26.2(2.6)	31.7(1.7)	6.4(2.1)	8.6(4.9)	5.5(3.1)
TYPE OF COMMUNITY							
EXTREME RURAL	26.4(2.8)	18.3(5.6)	25.9(5.8)	33.8(4.3)	7.4(5.2)	15.5(7.0)	8.0(7.3)
DISADVANTAGED URBAN	6.1(1.2)	7.9(4.7)	7.3(2.2)	16.9(3.7)	10.8(3.9)	9.0(5.9)	9.6(4.3)
ADVANTAGED URBAN	42.7(2.6)	42.8(5.0)	43.3(3.3)	40.5(3.0)	-2.3(4.0)	-2.3(5.8)	-2.8(4.5)
OTHER	25.2(0.9)	24.0(2.5)	25.7(1.6)	31.0(1.2)	5.8(1.5)	7.0(2.8)	5.3(2.0)
PARENTS' EDUCATION LEVEL							
LESS THAN H.S.	12.7(1.3)	8.6(4.0)	12.7(2.7)	16.3(3.5)	3.5(3.7)	7.7(5.3)	3.5(4.4)
GRADUATED H.S.	27.0(1.2)	20.3(3.1)	23.1(1.8)	27.3(1.8)	0.4(2.1)	7.0(3.5)	4.2(2.5)
SOME EDUC AFTER H.S.	39.4(1.5)	31.9(5.1)	38.5(3.7)	40.7(2.5)	1.3(3.0)	8.9(5.7)	2.2(4.5)
GRADUATED COLLEGE	35.1(1.2)	32.2(2.7)	36.8(1.6)	38.3(1.2)	3.2(1.7)	6.1(2.9)	1.6(2.2)
UNKNOWN	18.9(0.8)	16.1(2.1)	19.5(1.7)	23.9(1.3)	5.0(1.5)	7.8(2.5)	4.4(2.1)
TYPE OF SCHOOL							
PUBLIC	24.5(0.9)	23.9(2.1)	26.3(1.5)	30.3(0.8)	5.9(1.2)	6.4(2.2)	4.0(1.7)
PRIVATE	35.6(1.9)	28.2(5.6)	33.8(2.8)	37.2(3.0)	1.6(3.6)	9.0(6.4)	3.3(4.1)
QUARTILES							
UPPER	70.1(1.1)	79.1(3.0)	76.1(2.0)	80.2(1.5)	10.2(1.8)	1.1(3.3)	4.1(2.5)
MIDDLE TWO	16.2(0.6)	9.1(1.9)	16.9(1.5)	22.1(1.0)	5.9(1.1)	13.1(2.1)	5.2(1.6)
LOWER	0.2(0.1)	0.0(0.1)	0.2(0.2)	0.2(0.1)	0.0(0.2)	0.2(0.2)	0.0(0.2)

From Mullis et al., 1991, p. 229.

Table 12.3
NAEP 1990 Mathematics Trend Assessment--Age 9
Percentage of Students with Science Proficiency
At or Above Anchor Level 250

	1976-77	1981-82	1985-86	1989-90	DIFFERENCE 1977-90	DIFFERENCE 1982-90	DIFFERENCE 1986-90
-- TOTAL --	68.0(1.1)	70.7(1.9)	72.0(1.1)	76.4(0.9)	8.4(1.4)	5.6(2.1)	4.3(1.4)
SEX							
MALE	69.5(1.2)	69.7(2.0)	74.1(1.4)	76.3(1.2)	6.8(1.7)	6.6(2.4)	2.2(1.8)
FEMALE	66.5(1.1)	71.8(2.2)	70.0(1.3)	76.4(1.1)	9.9(1.6)	4.6(2.4)	6.5(1.7)
RACE/ETHNICITY							
WHITE	76.8(0.7)	78.4(2.0)	78.9(1.0)	84.4(0.7)	7.6(1.0)	6.0(2.1)	5.4(1.2)
BLACK	27.2(1.5)	38.9(2.7)	46.2(2.3)	46.4(3.1)	19.2(3.5)	7.5(4.1)	0.2(3.9)
HISPANIC	42.0(3.1)	40.2(6.1)	50.1(3.7)	56.3(3.7)	14.3(4.8)	16.1(7.1)	6.3(5.2)
OTHER	62.0(6.9)	77.0(5.6)	67.4(4.1)	76.3(7.0)	14.3(9.8)	-0.7(8.9)	8.9(8.1)
REGION							
NORTHEAST	72.6(1.6)	71.5(3.5)	75.6(2.5)	78.2(2.3)	5.7(2.8)	6.8(4.2)	2.7(3.4)
SOUTHEAST	55.0(2.4)	63.0(3.6)	67.3(3.0)	68.4(2.4)	13.4(3.4)	5.4(4.3)	1.2(3.8)
CENTRAL	72.5(2.1)	75.4(3.7)	75.2(2.1)	81.9(1.3)	9.4(2.5)	6.5(3.9)	6.7(2.5)
WEST	68.5(2.3)	71.4(3.8)	69.9(3.0)	76.8(2.1)	8.3(3.1)	5.4(4.3)	6.9(3.6)
TYPE OF COMMUNITY							
EXTREME RURAL	72.6(3.1)	66.0(5.1)	73.4(3.8)	81.6(3.6)	9.0(4.8)	15.6(6.3)	8.3(5.3)
DISADVANTAGED URBAN	33.5(3.2)	42.5(7.4)	41.0(5.8)	56.5(6.7)	22.9(7.4)	14.0(10.0)	15.5(8.9)
ADVANTAGED URBAN	85.5(1.7)	88.3(4.0)	86.9(1.8)	87.6(1.7)	2.1(2.4)	-0.7(4.3)	0.7(2.4)
OTHER	68.5(1.3)	71.4(2.3)	71.0(1.4)	76.4(1.1)	7.9(1.7)	4.9(2.5)	5.4(1.8)
PARENTS' EDUCATION LEVEL							
LESS THAN H.S.	49.8(2.4)	54.9(8.7)	55.1(3.6)	60.5(4.2)	10.7(4.8)	5.6(9.6)	5.4(5.5)
GRADUATED H.S.	71.2(1.4)	68.2(4.3)	69.1(1.9)	75.2(2.1)	4.0(2.5)	7.0(4.8)	6.1(2.8)
SOME EDUC AFTER H.S.	81.9(1.5)	80.7(2.4)	80.2(1.9)	81.3(2.3)	-0.6(2.8)	0.6(3.3)	1.1(3.0)
GRADUATED COLLEGE	77.7(1.2)	78.8(2.0)	80.4(1.2)	81.9(1.2)	4.2(1.7)	3.1(2.3)	1.5(1.7)
UNKNOWN	60.8(1.5)	60.9(3.6)	65.0(2.0)	71.3(1.4)	10.6(2.1)	10.4(3.8)	6.3(2.4)
TYPE OF SCHOOL							
PUBLIC	66.4(1.3)	69.5(2.1)	70.5(1.3)	75.5(1.0)	9.0(1.6)	6.0(2.3)	4.9(1.7)
PRIVATE	80.3(1.7)	82.6(3.5)	79.7(2.3)	83.6(2.4)	3.3(2.9)	1.0(4.2)	3.9(3.3)
QUARTILES							
UPPER	99.0(0.3)	100.0(0.3)	99.7(0.2)	99.9(0.1)	0.9(0.3)	-0.1(0.3)	0.2(0.2)
MIDDLE TWO	78.4(0.6)	85.6(1.9)	84.9(1.1)	90.0(0.8)	11.6(1.0)	4.4(2.0)	5.0(1.4)
LOWER	16.2(1.1)	11.6(2.0)	18.6(1.6)	25.6(2.0)	9.4(2.3)	14.0(2.8)	7.0(2.6)

From Mullis et al., 1991, p. 230.

Table 12.4
NAEP 1990 Mathematics Trend Assessment--Age 9
Percentage of Students with Science Proficiency
At or Above Anchor Level 300

	1976-77	1981-82	1985-86	1989-90	DIFFERENCE 1977-90	DIFFERENCE 1982-90	DIFFERENCE 1986-90
-- TOTAL --	3.2(0.3)	2.3(0.7)	3.0(0.5)	3.1(0.3)	-0.1(0.4)	0.8(0.7)	0.1(0.6)
SEX							
MALE	3.7(0.3)	2.5(1.0)	3.8(0.6)	4.2(0.6)	0.5(0.6)	1.7(1.2)	0.4(0.8)
FEMALE	2.6(0.3)	2.1(0.6)	2.2(0.5)	2.0(0.3)	-0.6(0.4)	-0.1(0.7)	-0.2(0.6)
RACE/ETHNICITY							
WHITE	3.9(0.3)	2.9(0.9)	3.8(0.6)	3.9(0.4)	0.0(0.5)	1.0(0.9)	0.1(0.7)
BLACK	0.2(0.1)	0.1(0.4)	0.3(0.2)	0.1(0.2)	0.0(0.2)	0.1(0.5)	-0.1(0.3)
HISPANIC	0.3(0.4)	0.0(0.4)	0.2(0.2)	0.4(0.4)	0.0(0.6)	0.4(0.6)	0.2(0.5)
OTHER	1.9(1.0)	0.0(1.0)	2.1(1.1)	3.2(1.5)	1.3(1.9)	3.2(1.9)	1.1(1.9)
REGION							
NORTHEAST	3.6(0.4)	2.6(1.2)	3.7(1.9)	3.4(0.7)	-0.2(0.8)	0.9(1.4)	-0.3(2.1)
SOUTHEAST	1.6(0.3)	1.4(0.5)	2.3(0.4)	2.2(0.7)	0.5(0.7)	0.7(0.9)	-0.2(0.8)
CENTRAL	3.8(0.5)	2.9(1.5)	3.2(0.8)	3.8(0.8)	-0.1(1.0)	0.9(1.7)	0.6(1.1)
WEST	3.2(0.5)	2.1(1.5)	2.7(0.9)	3.0(0.5)	-0.2(0.7)	0.9(1.6)	0.2(1.0)
TYPE OF COMMUNITY							
EXTREME RURAL	2.9(0.8)	0.4(0.8)	2.0(0.9)	3.3(1.2)	0.4(1.4)	2.9(1.4)	1.3(1.5)
DISADVANTAGED URBAN	0.4(0.3)	0.4(0.6)	0.2(0.6)	1.5(1.0)	1.1(1.1)	1.1(1.2)	1.3(1.2)
ADVANTAGED URBAN	7.3(1.3)	5.5(2.2)	6.7(1.0)	4.4(0.9)	-2.9(1.6)	-1.1(2.4)	-2.2(1.4)
OTHER	2.9(0.3)	2.3(0.8)	2.4(0.6)	3.0(0.3)	0.1(0.5)	0.7(0.9)	0.6(0.7)
PARENTS' EDUCATION LEVEL							
LESS THAN H.S.	0.9(0.4)	0.2(0.4)	0.8(0.9)	0.5(0.5)	-0.5(0.6)	0.2(0.6)	-0.3(1.0)
GRADUATED H.S.	3.2(0.3)	1.8(1.4)	1.6(0.5)	2.0(0.6)	-1.2(0.7)	0.2(1.5)	0.4(0.8)
SOME EDUC AFTER H.S.	5.7(1.0)	2.4(1.8)	4.4(1.4)	5.4(1.3)	-0.3(1.6)	3.0(2.2)	1.0(1.9)
GRADUATED COLLEGE	5.4(0.7)	3.7(1.1)	5.0(1.0)	4.5(0.6)	-0.8(0.9)	0.8(1.3)	-0.5(1.2)
UNKNOWN	1.7(0.4)	0.8(0.5)	1.4(0.4)	1.6(0.5)	0.0(0.6)	0.8(0.7)	0.2(0.7)
TYPE OF SCHOOL							
PUBLIC	2.9(0.3)	2.3(0.7)	2.8(0.6)	3.0(0.4)	0.1(0.5)	0.7(0.8)	0.2(0.7)
PRIVATE	5.1(1.1)	2.1(1.2)	4.0(0.7)	3.9(1.0)	-1.3(1.4)	1.8(1.6)	-0.2(1.2)
QUARTILES							
UPPER	12.0(0.9)	9.1(2.3)	11.7(1.7)	12.1(1.3)	0.0(1.5)	2.9(2.6)	0.4(2.1)
MIDDLE TWO	0.3(0.1)	0.0(0.1)	0.1(0.1)	0.2(0.1)	-0.1(0.2)	0.2(0.2)	0.0(0.2)
LOWER	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)

From Mullis et al., 1991, p. 231.

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Table 12.5
NAEP 1990 Science Trend Assessment--Age 9
Percentage of Students with Science Proficiency
At or Above Anchor Level 350

	1976-77	1981-82	1985-86	1989-90	DIFFERENCE 1977-90	DIFFERENCE 1982-90	DIFFERENCE 1986-90
-- TOTAL --	0.1(0.0)	0.0(0.1)	0.1(0.1)	0.1(0.0)	0.0(0.0)	0.0(0.1)	0.0(0.1)
SEX							
MALE	0.1(0.0)	0.1(0.2)	0.1(0.1)	0.1(0.1)	0.1(0.1)	0.1(0.2)	0.0(0.1)
FEMALE	0.1(0.0)	0.0(0.0)	0.1(0.1)	0.0(0.1)	-0.1(0.1)	0.0(0.1)	-0.1(0.2)
RACE/ETHNICITY							
WHITE	0.1(0.0)	0.1(0.1)	0.1(0.1)	0.1(0.1)	0.0(0.1)	0.0(0.1)	-0.1(0.1)
BLACK	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
HISPANIC	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
OTHER	0.0(0.0)	0.0(0.0)	0.1(0.0)	0.1(0.0)	0.1(0.0)	0.1(0.0)	0.0(0.0)
REGION							
NORTHEAST	0.1(0.1)	0.0(0.1)	0.2(0.3)	0.0(0.3)	0.0(0.3)	0.0(0.3)	-0.1(0.4)
SOUTHEAST	0.0(0.0)	0.0(0.0)	0.1(0.0)	0.1(0.1)	0.1(0.1)	0.1(0.1)	0.0(0.1)
CENTRAL	0.1(0.1)	0.0(0.3)	0.1(0.1)	0.1(0.1)	0.0(0.2)	0.0(0.3)	-0.1(0.2)
WEST	0.0(0.1)	0.1(0.1)	0.1(0.1)	0.1(0.1)	0.0(0.1)	0.0(0.1)	0.0(0.2)
TYPE OF COMMUNITY							
EXTREME RURAL	0.0(0.0)	0.0(0.0)	0.2(0.7)	0.0(0.7)	0.0(0.7)	0.0(0.7)	-0.1(1.0)
DISADVANTAGED URBAN	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
ADVANTAGED URBAN	0.2(0.2)	0.1(0.2)	0.3(0.2)	0.0(0.1)	-0.1(0.2)	-0.1(0.2)	-0.2(0.3)
OTHER	0.1(0.0)	0.0(0.1)	0.1(0.1)	0.1(0.0)	0.0(0.1)	0.0(0.1)	0.0(0.1)
PARENTS' EDUCATION LEVEL							
LESS THAN H.S.	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
GRADUATED H.S.	0.1(0.1)	0.0(0.1)	0.0(0.2)	0.0(0.2)	-0.1(0.2)	0.0(0.2)	0.0(0.2)
SOME EDUC AFTER H.S.	0.1(0.1)	0.0(0.1)	0.1(0.1)	0.1(0.1)	0.0(0.2)	0.1(0.2)	0.0(0.2)
GRADUATED COLLEGE	0.1(0.1)	0.1(0.2)	0.2(0.2)	0.1(0.1)	0.0(0.1)	0.0(0.2)	-0.1(0.2)
UNKNOWN	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
TYPE OF SCHOOL							
PUBLIC	0.0(0.0)	0.1(0.1)	0.1(0.1)	0.1(0.0)	0.0(0.0)	0.0(0.1)	0.0(0.1)
PRIVATE	0.2(0.2)	0.0(0.2)	0.2(0.2)	0.1(0.2)	-0.1(0.3)	0.1(0.3)	-0.1(0.3)
QUARTILES							
UPPER	0.2(0.1)	0.2(0.3)	0.4(0.3)	0.2(0.1)	0.0(0.2)	0.1(0.4)	-0.2(0.4)
MIDDLE TWO	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)
LOWER	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)	0.0(0.0)

From Mullis et al., 1991, p. 232.

Table 13

	Asian eighth graders	Hispanic eighth graders
LM status, student reported		
LM	73%	77%
Non-LM	27	23
LM students' English proficiency		
High	66	64
Moderate	29	32
Low	4	4
Proportions of students failing to achieve the basic test levels		
Reading achievement test		
High SES	12%	19%
Middle SES	27	27
Low SES	38	37
Non-LM students	23	30
LM students	24	31
High English proficiency	19	28
Moderate proficiency	33	34
Low English proficiency	63	69
Math achievement test		
High SES	14	22
Middle SES	25	34
Low SES	39	41
Non-LM students	27	36
LM students	23	37
High English proficiency	22	35
Moderate proficiency	25	37
Low English proficiency	24	58

From Bradby, 1992, p. viii.

Table 14
Teachers in public and private elementary and secondary schools, by selected characteristics: 1987-88

Selected characteristics	Total [1]	Percent of teachers, by highest degree earned						Percent of teachers, by years of full-time teaching experience			
		No degree	Associate	Bachelor's	Master's	Education specialist	Doctor's	Less than 3	3 to 9	10 to 20	Over 20
1	2	3	4	5	6	7	8	9	10	11	12
Public schools											
Total	2,323,204	0.2	0.4	52.2	40.0	6.3	0.9	8.0	26.0	44.5	21.4
Men	681,161	0.6	1.2	44.2	44.9	7.5	1.6	6.2	19.5	44.3	29.9
Women	1,631,168	(2)	0.1	55.5	37.9	5.7	0.8	8.7	28.8	44.6	17.8
Race/ethnicity											
White	1,994,389	0.2	0.4	52.1	40.3	6.2	0.8	8.0	26.6	44.4	21.0
Black	187,836	(2)	(2)	49.7	42.4	6.6	0.0	6.1	19.4	46.3	28.2
Hispanic	67,084	(2)	(2)	84.5	29.9	6.7	(2)	11.9	33.2	40.9	13.9
Asian or Pacific Islander	20,709	(2)	(2)	52.8	28.7	13.5	(2)	11.2	22.1	43.0	23.7
American Indian or Alaskan	23,998	(2)	(2)	50.1	40.5	7.5	(2)	5.7	24.3	49.7	20.2
Age											
Less than 30	310,901	(2)	(2)	82.9	15.4	1.1	(2)	36.5	63.2	(2)	(2)
30 to 39	813,204	(2)	0.3	53.3	40.6	5.2	0.5	6.0	33.6	60.2	(2)
40 to 49	752,301	0.2	0.5	44.2	46.0	7.8	1.3	2.3	14.0	55.0	28.6
50 or more	416,857	0.5	0.8	42.3	45.5	9.3	1.6	1.2	5.7	27.9	65.0
Level											
Elementary	1,181,578	(2)	(2)	56.8	36.9	5.6	0.6	8.4	27.4	44.3	19.8
Secondary	1,141,626	0.4	0.9	47.3	43.2	7.0	1.3	7.6	24.6	44.7	23.0
Private schools											
Total	307,131	2.9	1.5	61.3	29.7	2.9	1.7	18.4	37.4	29.8	13.5
Men	66,785	(2)	(2)	50.9	38.2	3.8	5.0	18.5	28.9	33.7	18.6
Women	239,975	3.2	1.7	64.2	27.4	2.7	0.8	18.4	39.8	28.8	12.1
Race/ethnicity											
White	281,152	2.9	1.3	61.2	30.3	2.7	1.6	18.4	37.7	30.2	13.8
Black	7,015	(2)	(2)	69.1	16.6	(2)	(2)	27.0	42.2	21.3	(2)
Hispanic	8,569	(2)	(2)	60.8	19.7	(2)	(2)	22.0	41.4	25.8	(2)
Asian or Pacific Islander	3,491	(2)	(2)	56.2	(2)	(2)	(2)	(2)	(2)	(2)	(2)
American Indian or Alaskan	2,747	(2)	(2)	93.7	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Age											
Less than 30	65,843	3.5	(2)	83.4	11.4	(2)	(2)	47.3	51.4	(2)	(2)
30 to 39	104,287	2.6	2.2	59.3	31.4	3.1	(2)	15.6	45.4	38.2	(2)
40 to 49	83,021	2.4	(2)	51.9	39.1	3.1	2.6	8.0	31.8	44.0	15.4
50 or more	49,378	3.3	(2)	52.4	34.7	5.1	(2)	4.0	11.1	27.5	56.8
Level											
Elementary	159,893	3.8	1.8	70.9	21.0	2.1	(2)	18.4	40.5	28.7	11.8
Secondary	147,238	1.9	1.1	50.9	39.2	3.7	3.1	18.5	34.0	31.0	15.4

[1] Total differs from data appearing in other tables because of varying survey processing procedures and time period coverages.
[2] Too few sample cases (fewer than 30) for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "Schools and Staffing Survey, 1987-88." (This table was prepared June 1990.)

From National Center for Education Statistics, 1991, p. 73.

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Table 15
Selected characteristics of public school teachers: Spring 1961 to Spring 1986

Item	1961	1966	1971	1976	1981	1986
1	2	3	4	5	6	7
Number of teachers, in thousands	**1,408**	**1,710**	**2,065**	**2,196**	**2,184**	**2,207**
Sex (percent)						
Men	31.3	31.1	34.3	32.9	33.1	31.2
Women	68.7	69.0	65.7	67.0	66.9	68.8
Median age (years)						
All teachers	41	36	35	33	37	41
Men	34	33	33	33	38	42
Women	46	40	37	33	36	41
Race (percent)						
White	—	—	88.3	90.8	91.6	89.6
Black	—	—	8.1	8.0	7.8	6.9
Other	—	—	3.6	1.2	0.7	3.4
Marital status (percent)						
Single	22.3	22.0	19.5	20.1	18.5	12.9
Married	68.0	69.1	71.9	71.3	73.0	75.7
Widowed, divorced, or separated	9.7	9.0	8.6	8.6	8.5	11.4
Highest degree held (percent)						
Less than bachelor's	14.6	7.0	2.9	0.9	0.4	0.3
Bachelor's	61.9	69.6	69.6	61.6	50.1	48.3
Master's or specialist degree	23.1	23.2	27.1	37.1	49.3	50.7
Doctor's	0.4	0.1	0.4	0.4	0.3	0.7
College credits earned in last 3 years						
Percent who earned credits	—	—	60.7	63.2	56.1	53.1
Mean number of credits earned [1]	—	—	14	—	9	4
Median years of teaching experience	11	8	8	8	12	15
Teaching for first year (percent)	8.0	9.1	9.1	5.5	2.4	3.1
Average number of pupils per class						
Elementary teachers, not departmentalized	29	28	27	25	25	24
Elementary teachers, departmentalized	—	—	25	23	22	—
Secondary teachers	28	26	27	25	23	25
Mean number of students taught per day by secondary teachers	136	132	134	126	118	94
Average number of hours in required school day	7.4	7.3	7.3	7.3	7.3	7.3
Average number of hours per week spent on all teaching duties						
All teachers	47	47	47	46	46	49
Elementary teachers	49	47	46	44	44	47
Secondary teachers	46	46	46	46	46	51
Average number of days of classroom teaching in school year	—	181	181	180	180	180
Average number of nonteaching days in school year	—	5	4	5	6	5
Average annual salary as classroom teacher	[2] $5,264	$6,253	$9,261	$12,005	$17,209	$24,504
Total income, including spouse's (if married)	—	—	$15,021	$19,957	$29,831	$43,413
Willingness to teach again (percent)						
Certainly would	49.9	52.6	44.9	37.5	21.8	22.7
Probably would	26.9	25.4	29.5	26.1	24.6	26.3
Chances about even	12.5	12.9	13.0	17.5	17.6	19.6
Probably would not	7.9	7.1	8.9	13.4	24.0	22.0
Certainly would not	2.8	2.0	3.7	5.6	12.0	9.3

[1] Measured in semester hours.
[2] Includes extra pay for extra duties.
—Data not available.

NOTE.—Data are based upon sample surveys of public school teachers. Data differs from figures appearing in other tables because of varying procedures and time period coverages. Because of rounding, percents may not add to 100.0.

SOURCE: National Education Association, *Status of the American Public School Teacher, 1985–86.* (Copyright © 1987 by the National Education Association. All rights reserved.) (This table was prepared July 1987.)

From National Center for Education Statistics, 1991, p. 77.

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Table 16

Federal Resources[1] for Programs that Improve the Education/Provide Services during the Preschool Years, School Years, and Post High School Years

PROGRAM TYPE	CURRENT $ IN MILLIONS			CHANGE 1989 – 1991		
	FY 1989	FY 1990	FY 1991	CURRENT DOLLARS %	CONSTANT DOLLARS[3]	
					$ IN MILLIONS	%
Preschool Years	9,155	11,119	14,200	55%	4,153	41%
School Years	15,203	16,616	18,537	22%	1,851	11%
Post-High School Years	21,868	23,157	24,770	13%	770	3%
Other[2]	1,060	1,094	1,242	17%	79	7%
TOTAL	47,286	51,986	58,749	24%	6,854	13%

[1] Figures rounded to nearest $1 million.
[2] A residual category that captures those programs/activities which do not fitr into one of the three age categories but provide general support related to the National Education Goals.
[3] In 1991 dollars; see Appendix B.

From National Education Goals Panel, 1991, p, 196.

Table 17

Major Federal Programs[1] that Improve the Education/Provide Services during the Preschool Years

PROGRAM[2]	CURRENT $ IN MILLIONS[3]			CHANGE 1989 - 1991			SERVICE LEVELS
	FY 1989	FY 1990	FY 1991	CURRENT DOLLARS %	CONSTANT DOLLARS[4] $ IN MILLIONS	CONSTANT DOLLARS[4] %	
Medicaid for Children (HHS)	2.731	3.614	4.729	73%	1.732	58%	4.8 million young children received Medicaid cards (1990)
WIC (Agriculture)[5]	1.829	2.126	2.350	28%	343	17%	1.9 million pregnant women & infants: 2 million children (89)
Head Start (HHS)	1.235	1.552	1.952	58%	597	44%	596.295 children (1991)
CACFP (Agriculture)[5]	677	814	1.024	51%	281	38%	1.3 million children (1989)
Foster Care (HHS)	440	390	742	61%	259	54%	45.691 avg monthly case load (1990)
Chapter 1 (Education)	494	583	682	35%	140	23%	407.186 children (1988-1989)
MCH Block Grant (HHS)	554	554	587	6%	-21	-3%	N/A
Special Education (Education)	450	478	584	30%	90	18%	356.000 in preschool grant programs (90)
Family Support Payments for Day Care (HHS)[6]	17	135	480	2700%	461	2500%[6]	N/A
Childhood Immunization (HHS)	142	187	218	54%	62	40%	2 million children age 2 months thru kdgtn (1990)
Community & Migrant Health Centers (HHS)	184	190	198	8%	-4	-2%	400 clinics in 40 states & Puerto Rico (1990)
Indian Health Service (HHS)	112	141	173	54%	50	41%	130.000 children, 0-5 years old (1991)
Other[7]	290	355	481	66%	63	51%	N/A
TOTAL	9.155	11.119	14.200	55%	4.153	41%	N/A

[1]Program descriptions are in Appendix C.
[2]Complete Department/Agency titles are in Appendix D.
[3]Figures rounded to nearest $1 million. Tables may not total due to rounding.
[4]In 1991 dollars: see Appendix B.
[5]Obligations.
[6]The program did not begin until 1989. The large increments in funding are due to increases in the number of participating states as the program becomes fully operational.
[7]Other federal programs that improve/provide services to preschool years funded for less than $100 million in FY 1991.

From National Education Goals Panel, 1991, p. 199.

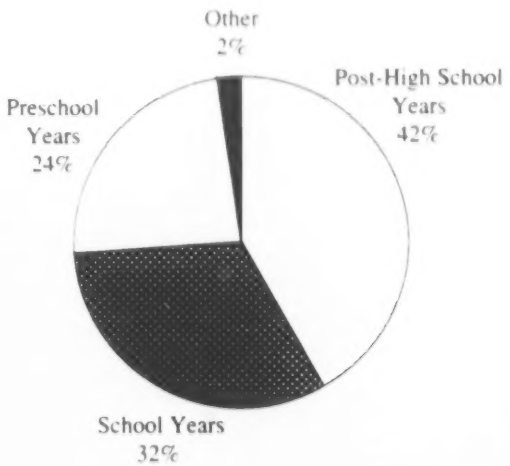
Table 18
Major Federal Programs[1] that Improve Education/Provide Services During the Preschool Years

PROGRAM	CURRENT $ IN MILLIONS[2]			CHANGE 1989 – 1991			SERVICE LEVELS
	FY 1989	FY 1990	FY 1991	CURRENT DOLLARS %	CONSTANT DOLLARS $ IN MILLIONS	CONSTANT DOLLARS %	
Chapter 1 (Education)	4,026	4,721	5,466	36%	1,048	24%	4,650,230 students grades 1-12 (88-89)
School Meals Programs (Agriculture)[4]	3,762	4,007	4,271	14%	142	3%	24.4 million lunches & 4.4 million breakfasts daily; 1.7 million summer meals; 183 million 1/2 pts of milk (1991)
Special Ed. Basic State Grants (Education)	1,366	1,420	1,705	25%	206	14%	4,097,837 children served (1991)
Classroom Instruction (Defense)	845	885	998	18%	71	8%	191,955 students (Sept. 1990)
Job Corps (Labor)	326	353	381	17%	23	6%	27,459 16- & 17-yr-old completed program (7/89 - 6/90)
Impact Aid Grants (Education)	708	717	741	5%	-36	-5%	N/A
JTPA Summer Jobs (Labor)	709	700	683	-4%	-95	-12%	466,006, 14-17-yr-olds (1990)
Vocational Ed. Basic State Grants (Education)	503	515	518	3%	-34	-6%	97% of all high school students enrolled in at least 1 course (1989)
Drug-free Schools (Education)	323	504	553	71%	199	56%	78% of nation's LEA receive program funds (1988-1989)
Chapter 2 (Education)	463	457	450	-3%	-58	-11%	99% of nation's schools received program funds (84-85)
JTPA II-A (Labor)	286	279	285	0%	-29	-9%	43,841, 14-15-yr-olds (1989)
CN Commodities[4] (Agriculture)	183	218	259	42%	58	29%	N/A
Eisenhower Math/ Science (Education)	128	127	200	56%	60	42%	1/3 of all math/science teachers benefit annually
BIA Indian Schools (Interior)	162	170	192	19%	14	8%	40,841 students (1991)
Bilingual Education (Education)	100	103	109	9%	-1	-1%	281,322 students (1990)
Vocational Rehabilitation State Grants (Education)	116	122	131	13%	4	3%	4,690 served, under 18 yrs. old (1990)
Magnet Schools (Education)	114	113	110	-4%	-15	-12%	54 school districts in 25 states funded (1990)
Other[5]	1,084	1,205	1,485	37%	296	25%	N/A
TOTAL	15,203	16,616	18,537	22%	1,851	11%	N/A

Program descriptions are in Appendix C. Complete Department/Agency titles are in Appendix D.
Figures rounded to nearest $1 million. Tables may not total due to rounding.
In 1991 dollars; see Appendix B.
[4]Obligations.
[5]Other federal programs that improve/provide services during the school years funded for less than $100 million in FY 1991

From National Education Goals Panel, 1991, p. 201.

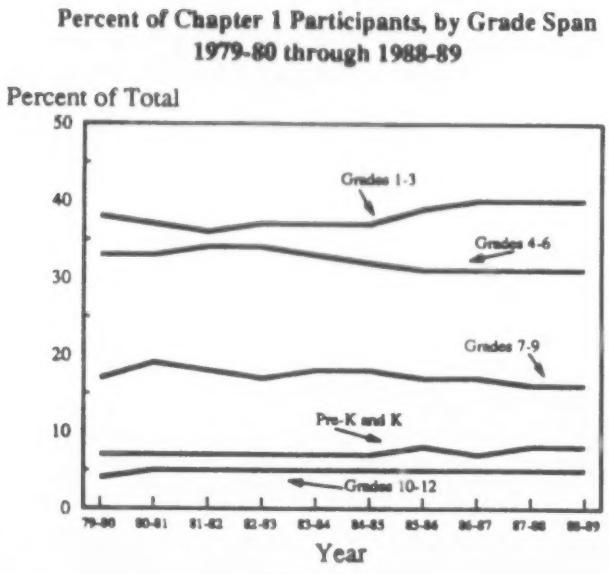
Figure 17



Proportion of 1991 federal resources provided for programs that improve the education/provide services during preschool years, school years, and post-high school years.

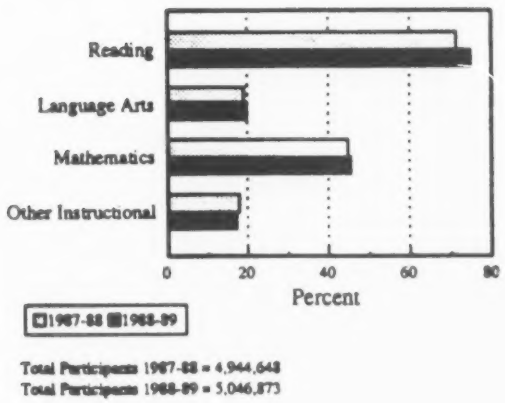
From National Education Goals Panel, 1991, p. 197.

Figure 18
Percentage of Chapter 1 Participants, by Grade Span
1979-80 through 1988-89



From Sinclair and Gutmann, 1991, p. 10.

Figure 19
Percent of Chapter 1 Participants, Served by Instructional Service Area 1987-88 and 1988-89



From Sinclair and Gutmann, 1991, p. 15.

Figure 20
Percent of Title 1/Chapter 1 Students and All Students with Various Characteristics

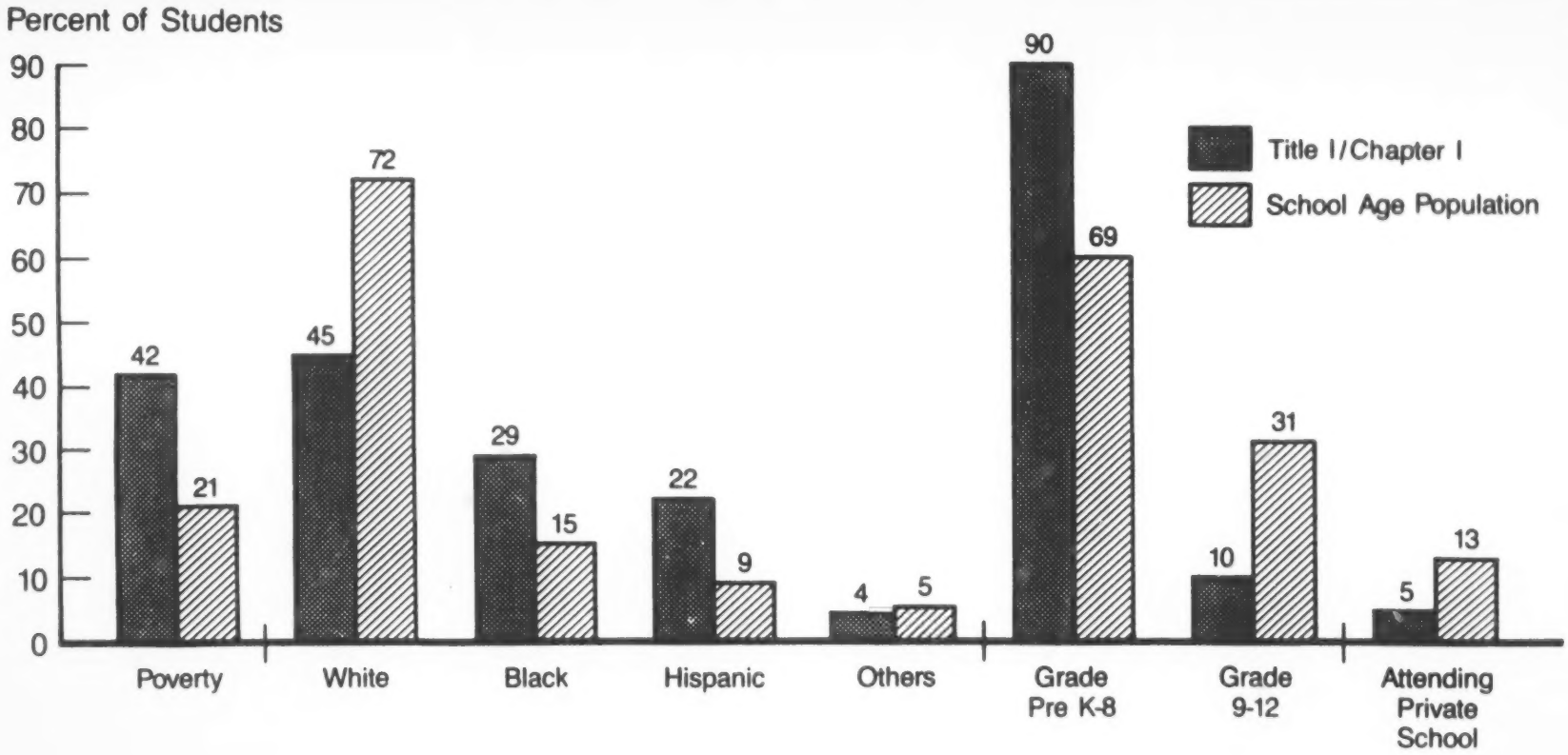


FIGURE READS: "Among Title I students in 1976-77, 42 percent were poor. Among the student population in general in 1976-77, 21 percent were poor."

From Kennedy, Jung, and Orland, 1986, p. 71.

Figure 21
Settings in Which Chapter 1 Reading and Mathematics are Provided by Public Schools, as Reported by School Principals, 1985-86.

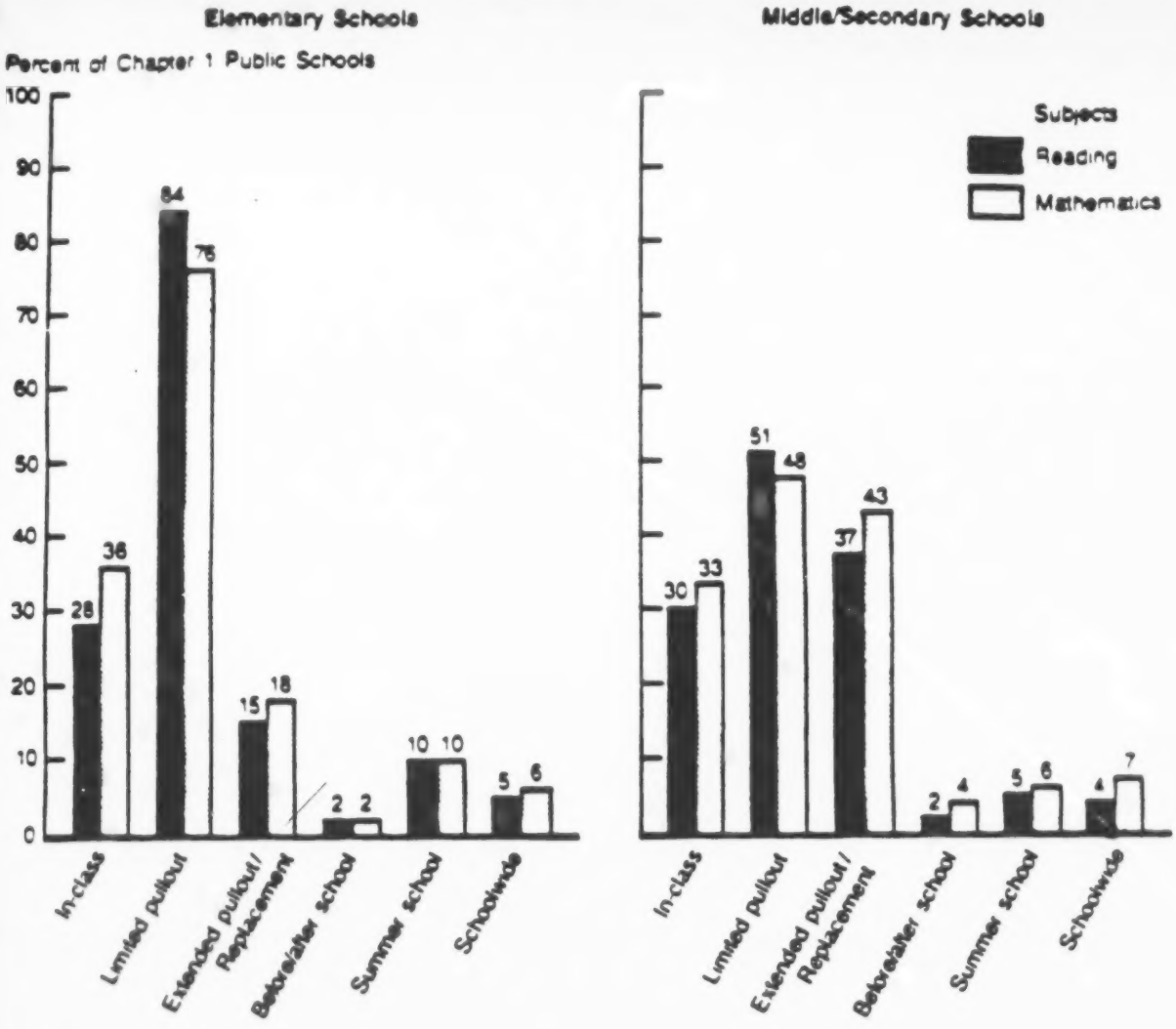


Figure reads: Of all public elementary schools that offer Chapter 1 reading instruction, principals in 28 percent report use of an in-class setting to teach Chapter 1 reading.

From Birman et al., 1987, p. 63.

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Figure 22
Reading and Mathematics Achievement of Students Receiving and Not Receiving Compensatory Education, Sustaining Effects Study, 1976-77.

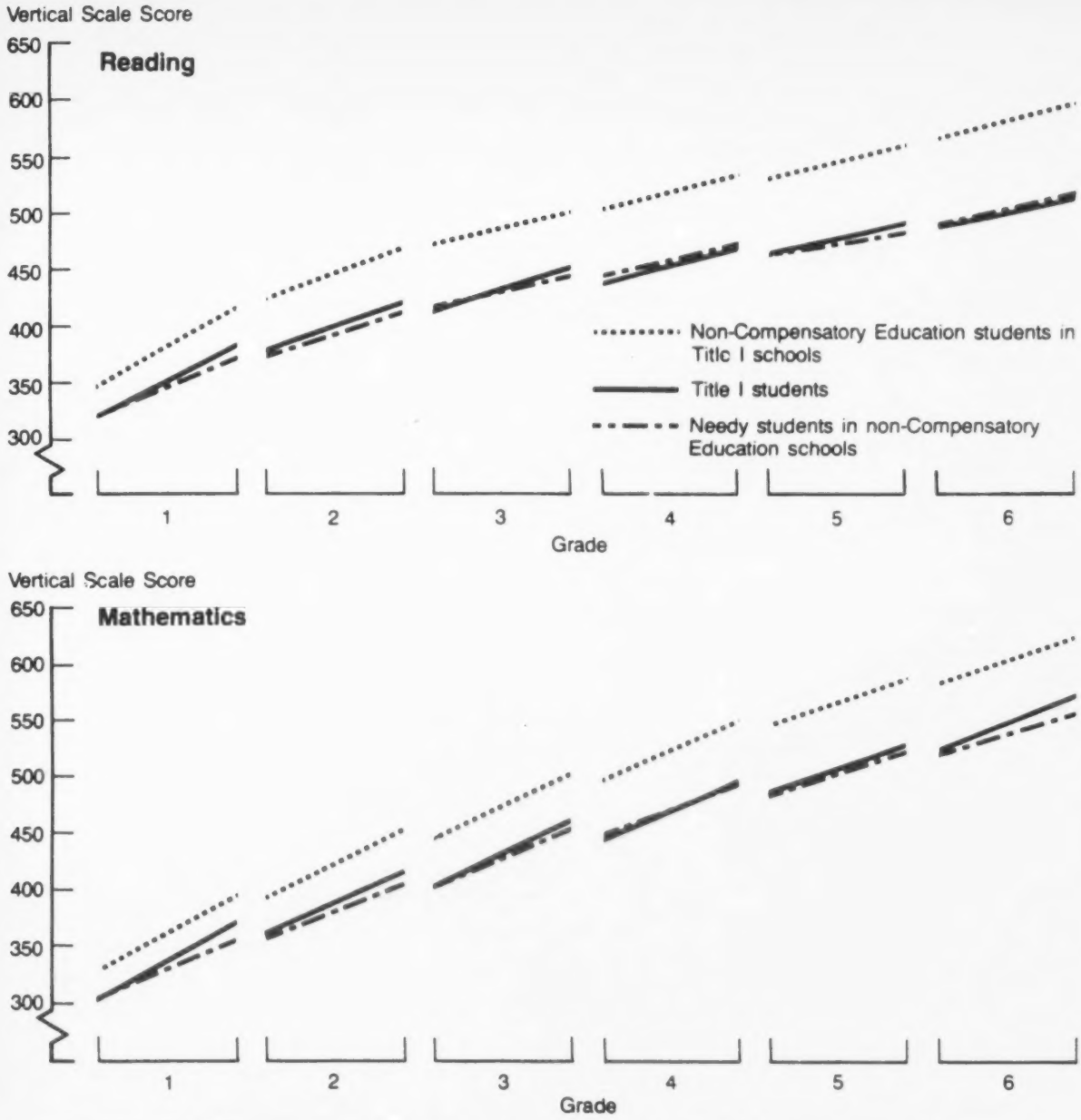


Figure reads: The vertical scale scores of Title I first-grade students for reading and mathematics increased more from the fall to the spring than did those of similar students not enrolled in Title I schools, yet Title I first graders started behind regular first graders in Title I schools who did not receive Chapter I and failed to catch up by the spring.

From Kennedy,. Birman, and Demaline, 1986, p. 34.

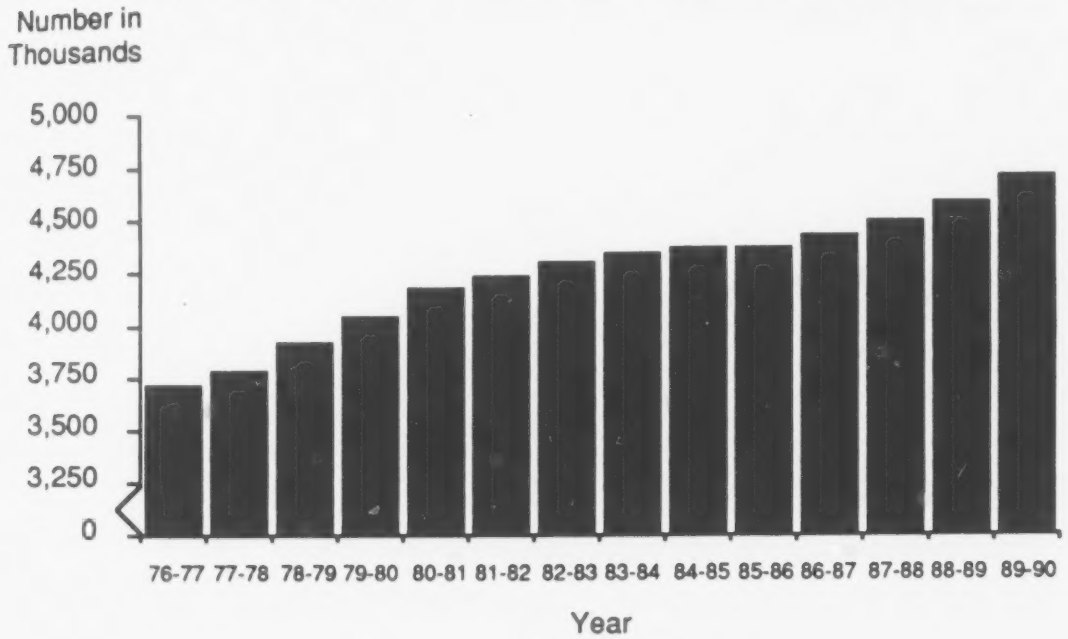
Table 19
Growth of Three Groups of Students Participating in Sustaining Effects Study, 1976-77
(Expressed in Standard Deviation Units)[1]

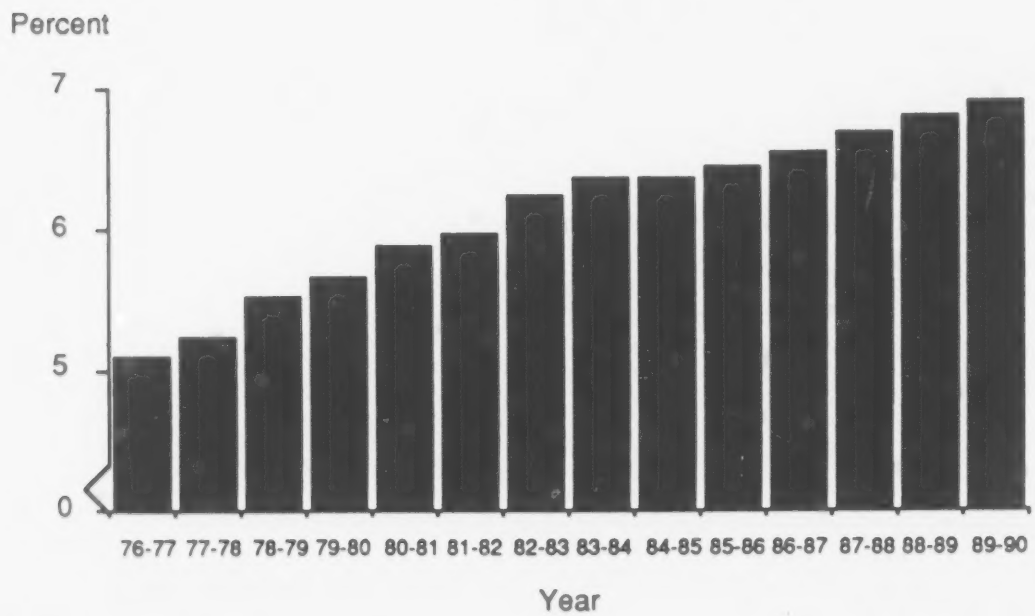
	Representative Sample	Title I Students	Needy Students With No CE
Reading			
Grade 1	1.98	1.79	1.60
2	.87	.85	.77
3	.61	.64	.53
4	.46	.50	.49
5	.42	.38	.34
6	.37	.37	.37
Math			
Grade 1	1.75	1.76	1.40
2	1.24	1.19	1.04
3	1.21	1.13	1.03
4	.84	.90	.79
5	.70	.68	.55
6	.58	.64	.49

1/ All gains are converted to standard deviation units, using the standard deviation of the Fall scores of the Representative Samples.

From Kennedy, Birman, & Demaline, 1986, p. 31.

Figure 23
Number and Percentage of Students Served Under Chapter 1 of ESEA (SOP) and IDEA, Part B School Year 1976-77 through 1989-90





NOTE: The figures represent children birth through 20 years old served under Chapter 1 and children 3 through 21 years old served under Part B. For 1988-89 and 1989-90, the figures represent children birth through age 21 served under Chapter 1.

From U.S. Office of Special Education,. 1991, p. 5.

Table 20
Percent of Children Served in Educational Programs for the Handicapped

TYPE OF HANDICAP	PERCENT OF CHILDREN AGED 0 - 7 SERVED			
	1976-77	1980-81	1984-85	1988-89
All Conditions	8.33	10.12	11.00	11.30
Learning Disabled	1.80	3.57	4.67	4.94
Mentally Retarded	2.16	2.03	1.77	1.40
Emotionally Disturbed	0.64	0.85	0.95	0.94
Speech Impaired	2.94	2.85	2.87	2.41
Other (Deaf, Blind, etc.)	0.81	0.83	0.73	0.64

Adapted from the U.S. Department of Education, Office of Educational Research and Improvement NCES 91-660 (1990), Digest of Education Statistics 1990.